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AMERICAN VETERINARY REVIEW.

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AMERICAN VETERINARY REVIEW

APRIL, 1907.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, FRANCE, Feb. 15, 1907.

AMERICAN VETERINARY EDUCATION.—Our esteemed collaborator and friend, Prof. W. L. Williams, of the New York State Veterinary College, has presented the readers of the *Veterinary Journal*, in the December issue of this excellent contemporary, his maiden communication as co-editor for the United States of America, and his efforts must no doubt have proved of great interest to the English readers, who have found in the article facts relating to veterinary education in America which must have given them abundant matter for serious thought.

The text of the article of Prof. Williams is indeed on that important subject, and I am sure that veterinarians of North America, and especially those who are engaged in teaching, will gain much by it, in studying it and probably benefiting by it. The Professor is very severe, and tells very hard truths, but he intends "to avoid the drawing or suggesting of any conclusions, leaving these to the reader." This is very unfortunate, because, after showing so accurately where the faults are, where the evils exist, good and daring surgeon as he is, his suggestions for treatment would undoubtedly have been taken in high consideration and made many advocates who would have brought out the

changes that will impose themselves in the eyes of all those who will be his readers.

In introducing the subject, the editor of the *Journal* says: "For years, the enthusiastic and energetic editor of our contemporary, the AMERICAN VETERINARY REVIEW, has been urging the question of educational reforms in professional teachings as the quickest and surest way to obtain social recognition, and it must be somewhat gratifying to Prof. Liautard to find that the American Veterinary Medical Association and the Bureau of Animal Industry, together with the Army officials, are at last taking the matter up"

While I thank the editor of the *Journal* very warmly for the compliment, and appreciating the action of the bodies referred to, I must say that from what I know and certainly from the article of Prof. Williams, I am still more convinced that the reforms that I have urged on so many occasions are to-day more urgent than ever. Heretofore the defects of our education in America were known only by us. Williams has done more, he has done better than I, in pushing them forward; he has shown them to the world at large, who will watch for the next step!!

* * *

Prof. Williams begins by telling how veterinary colleges had their origin, and how the creation of agricultural colleges was, so to speak, the initial stimulus that gave them birth. "These colleges were promptly organized . . . and in most of these, veterinarians were employed to give instruction . . . these veterinarians were drawn almost wholly from Great Britain, and were men of high attainments." The Professor might have added, they were also the initiators of the gratuitous advice in sporting and agricultural papers in the opening of the "Veterinary Editor" columns of those papers. However, it may be so; the several connections that the Professor has had with agricultural schools must be sufficient evidence that his information is correct!! He tells us how the first private schools were given their start and how, "launched on tempestuous seas, some of them were soon hopelessly wrecked,

others led a precarious existence for a time only, to decline and later perish, while a few continue to exist . . . ;" and, after criticising rather severely those undertakings, he says : " Aside from these incentives, some have certainly sacrificed personal welfare and labored zealously for the advancement of the profession, without material recompense, but on the whole probably the private colleges and their faculties have given to the student not more than that for which he had paid in the form of tuition " . . . " virtually the private veterinary college must prove a financial success or it must close its doors. Sentiment cannot enter very deeply into the question."

Prof. Williams advances an opinion, which I am sure has gone beyond his thoughts ; if he looks round him from forty years ago to date, he will recognize his mistake. The time has not always existed when salaries varied as to-day between \$1000 and \$4000 with pension to widows afterwards.

Sentiment may sometimes induce daring acts, foolish if you wish, but yet if failure follows it should command respect and admiration rather than deserve sneers.

* * *

And now we are entering into the living part of the article —the consideration of the schools now in existence. First, the Professor makes a sweeping distinction, the *State* colleges, those that are receiving State or Governmental aid (probably those where salaries varying from one to four thousand are paid), and the private colleges which depend upon tuition, are conducted by a private party or parties, even though technically affiliated with a University (and which, I suppose, are those doomed to close).

A chart explanatory of all those colleges gives also a comparative criticism of the working of all those establishments. It is very interesting to consult and gives to the reader valuable material for consideration.

Indeed, we find that 22 colleges are the subjects from which the Professor has obtained the element for his remarks. It is stated that in these colleges there are or were 2040 students. Of

these 194 belong to four schools where high requirements are exacted for matriculation, and among these four schools one grants *free* scholarships. As the total number of students to the state schools is only 621 altogether, there remain 427 for the other state colleges. It must also be observed that of those state schools, there are three where students are received free and that at those three institutions only 222 students are recorded. Therefore, taking from the whole number of students, 2040, the 621 of the state schools, it leaves 1419 for the other eighteen colleges, which for matriculation demand a common school education only.

It is also peculiarly interesting to read that out of the state colleges, there are four where no high school education is required and that they figure with 414 students out of the whole number, 621. As a general *r  sum  *, out of 2040 students who are in our schools at present, only 246 are possessed of a high school education. *Rather a poor showing!!*

There are also some well prepared exhibitions of the division of the curricula in the 22 colleges. I will only take a few items to show the necessity of the reform so often asked for. For instance, under the heading of "total medicine group," 368 hours are required at the Iowa State College and 212 at the United States College of Veterinary Surgeons in Washington, and between these figures all the other colleges vary. In the "surgical group," 404 hours are given at the Philadelphia college and only 96 at the New York-American Veterinary College. In physiology, the number of hours vary between 170 and 48. In obstetrics between 72 and 34. In anatomy between 216 and 96. The clinical teaching varies between 364 hours and 144, and so on for all the various departments which are found in some schools and not in others. A general *r  sum  * of the number of hours fills the last column of the chart, giving the total number of an entire course. It varies between 4,704 for the Veterinary Department of the Ohio State College and 1,392 for the Indiana Veterinary College. The Laval School of Canada is credited with only 540 hours.

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After this instructive chart, Prof. Williams passes in review the organization of some of the schools, with the State colleges leading, of course. He then makes an exposition of the teachings of the announcements, of the requirements for admission, of the temptations and calls for patronage, etc. A rather queer conclusion might be drawn by a badly disposed reader, when noticing what is written of the Chicago College; he finds that school with 304 students—in fact, the largest class of all the colleges, with the Kansas City College credited with 280, while a free institution like the New York State Veterinary College has but 88, counting the free students!!!

The solid part of the article concludes in giving the percentage of alumni engaged in different lines of work, according to the statistics gathered from the various colleges.

As the table does not say anything about the work done by the alumni of the original "American veterinary college," I may be allowed to recall that in 1897 the records of the 600 graduates of that institution were: 34 who were or had been engaged as teachers and investigators, 63 who were or had been members of the Bureau of Animal Industry or engaged in sanitary work, 8 were or had been in the Army. Of course, I understand that the A. V. C. no longer exists as one institution, but it might have been but fair to present the work of the two private institutions which to-day form the Veterinary Department of New York University, which the pen of Prof. Williams seems to have absolutely overlooked, even if the article had for its main object the consideration of conditions as they exist at the present time.

* * *

And now what can be the conclusions, after reading this severe criticism? To my mind, it must be that Prof. Williams has done well in showing the deficiency of the veterinary educational system in America; he has done it in telling the bitter truth, and while at the end he cautions the foreign reader not to conceive a too poor opinion of American veterinarians because of the defects in our schools, and, while he also points out the

actions of the Bureau of Animal Industry, of the Army and of the American Veterinary Medical Association, he terminates in calling upon that last organization for reforms—reforms which I have urged so often, and which the mass of veterinarians in America feel are essential. Prof. Williams gives us to understand that the National Organization is disposed to ask for them. I hear that the Association of Veterinary Faculties is preparing a report in favor of action; let us all hope that the article in the *Journal* will have for effect to help us to see all those defects wiped out and that all the schools will at an early date adopt the following regulations:

Similar matriculation requirements;

Similar length of attendance at college;

Similarly regulated curricula, with similar mode of graduation;

Similar title or degree, that of Doctorship.

Until these are accomplished, severe criticisms like that of Williams or those of Continental writers, as I have already mentioned, will have to be expected and will be deserved!!

* * *

SIMIAN ANTISYPHILITIC SERUM.—“Syphilis, one of the greatest causes for anxiety that weighs on man’s mind and that of which he speaks only with hesitancy, is said to be about to disappear, thanks to our inferior brethren (?) which will be sacrificed on the altar of science, which in this instance is so close to the altar of love!”

These remarks, made by one of our writers here, came back to my mind while lately making a friendly visit to Pasteur Institute, and when I was reminded of the case of that poor “Edwige,” to whom Dr. Metchnikoff had inoculated the infamous virus from which she died, possibly also with a feeling of shame?

Guinea-pigs and rabbits are ordinarily the objects of bacteriological experiments. Monkeys have the privilege and the honor of the specific treatment, as being the animal nearest to

man and the most proper to come nearer to him in the development of the disease. It is for that reason that Dr. Metchnikoff has resorted to the use of monkeys for his investigations and on that account those animals are assuming at present much interest for their participation in those delicate studies and in the preparations whose incalculable results may mean for humanity its own salvation !

Let the bacillus of syphilis be discovered, let the one which is spoken of be the source of all the moral and physical disasters that we all have read and heard of, then a specific serum will soon be found; and it is from monkeys that it will be obtained and from them alone, at least with the extent of our present knowledge!

But how will those animals be found in sufficient quantity to allow the preparation of this saving agent so essential for our imprudent humanity ?

* * *

At present our laboratories are provided from menageries or by purchases from sailors or from firms dealing in those animals. Unfortunately, while guinea-pigs and rabbits reproduce rapidly and in great number, it is not so with monkeys. With them the function progresses very slowly and requires minute care. It is better to buy them than to breed and raise them. Small, they cost five or six dollars, when of reduced size. Those of medium dimensions go up to \$20 and \$30. To get them of the size of "Edwige," one must pay between \$200 and \$300. Small and medium sized monkeys, when killed, give only half a glassful of blood, scarcely enough to make 30 or 40 cubic centimetres of serum. Every human patient would need 20 to 25 cubic centimetres, or say two monkeys for three patients ! What a hecatomb in perspective !

All species can be used for experiments, but the nearer to man they are, the nearer the experimental disease given to him resembles that of man. For that reason monkeys are preferred to the exclusion of guinea-pigs and rabbits. Besides the fact of their being costly, there are other difficulties in the way. They are

malicious and ugly. They get angry, are ready to fight always, and much care is required in handling them or one is likely to be badly bitten. The hand covered with a steel glove is a precaution that must not be neglected. I was shown a Rhesus which was peculiarly bad and ugly. He seemed to know all that took place in the room; he glanced with anxiety and followed with angry eyes every step of people moving around him, and he seemed as guessing their intentions. This instinct is general with all. They seem to feel that one day or another they will be operated upon, and when one is about to be removed for the sacrifice they gather all in one corner of their cage, make themselves as small as they can, want to be concealed, not to be found, keeping quiet and silent in great contrast with their usual custom of screaming and jumping as they do.

Yet, if monkeys are essential for the preparation of an anti-syphilitic serum, they will have to be obtained, should the entire population of monkeys all over the world be condemned to be annihilated and disappear. But, then what after?

* * *

THE FAILURES OF TUBERCULIN are known to all who have had occasion to use it, and I have already made allusion to the experiments that have been made and the means that have been recommended to avoid them. The subject has been recently the object of a communication made by Prof. Lignières before the Société Centrale in Paris, while the Professor was enjoying his vacation.

First of all, Lignières acknowledges the great value of this means of diagnosis, infallible with naturally tuberculous animals that have never been tuberculined or that have not been for thirty days.

Failures of tuberculin are rare, but they still exist, and for a long time means to avoid them have been looked for. Hyperactive tuberculins are not practical. Malm has proposed massive injections of tuberculin to promote a reaction in animals, which had been tuberculined inside of thirty days

previous. Vallée, with the same object, has proposed the injection of double doses of tuberculin, and recommended the taking of the temperature every two hours from the time of the injection. Prof. Arloing has also studied the question.

For the speaker, all these methods are uncertain, as it is possible to accustom tuberculous animals even to elevated doses and prevent all reaction. The failures of tuberculin are observed in extensively tuberculous animals, but in these cases the clinical examination will be sufficient for a diagnosis, and one must never allow himself to be misguided by the indications of the experimental inoculation.

If naturally tuberculous animals may not react, failures are still more numerous with bovines infected experimentally. This is an important fact which is known by all who have been interested in the study of immunization against tuberculosis. It is a point which must not be overlooked, as if preventive inoculation was becoming generalized, it is possible that the lesions created by the vaccine, latent and slow to develop, might not be detected by tuberculin. The fight against tuberculosis by vaccination and the use of tuberculin would remain incomplete.

In conclusion, on account of the failures of tuberculin which it is not possible to avoid, this agent can no longer be considered as the most perfect means of diagnosis of tuberculosis, but to it must be added all the indications given by the clinical examination.

Such an eclatant assertion made by one who lives in his laboratory, who is a confirmed bacteriologist, will certainly be gratifying to the practitioners, who might have thought that no diagnosis would any longer be accepted, when made with physical signs and ignorance of tuberculin!

* * *

COLICS IN HORSES.—It was towards the end of 1903 that I mentioned in these pages the appointment of a Commission on Colics, which had been made at the Société Centrale to consider and study all the documents which had been sent to that

society, in consequence of the discussions which had repeatedly taken place at its meeting.

Papers were in large numbers and their examination was a tedious work, no doubt. At last the Commission has been able to make its report.

The papers were classified, and, according to their value, taken individually for consideration.

In a first category were those that treated of the etiology of colics, and in a second those that were related principally to the therapy of colics.

On the subject of the etiology, six papers were entitled: "Hygiene and colics in horses," "Contribution to the study of colics," "On the most frequent causes of stomachal and intestinal indigestion observed in artillery horses," "Influence of social, economical and agricultural disturbances upon the mortality among army horses from affections of the digestive canal," "Effect of overwork and of functional alterations of the liver in the etiology of colics," "On the pathogeny of the colics of army horses."

Four papers only treated of the therapeutics: "Colics of horses and their treatment," "Mixte refrigeration in the treatment of intestinal congestion of horses," "Note relating to the use of pilocarpine and eserine," "Opium in the treatment of colics of horses."

From this long list of articles, it might have been supposed that something exceptional might be derived from the careful analysis made by the Commission. Was it so?

Perhaps some new points have been brought out in relation to the etiology, and yet when one author accuses too much work as a cause of the trouble, another writer says: stabulation and too much rest are doing all the mischief. For this one, it is a peculiar *régime*, a special diet, too much of this or of that food, and then another gives an entirely different conclusion. And when it is a question of the therapy, here it is perhaps worse. For one alkaloids are the thing, for another they are not. Much, however, is said of the sedative, soothing, calming therapy, and

for many opium is the proper agent to use. It has been quite strange to me that in no instance have the authors said one word in favor of chloral hydrate! Is it that French veterinarians do not use it?

In conclusion, no new light has been thrown on the subject, wide and important as it is. The Commission is still kept up to follow the consideration of other documents, if any more are coming!

Of course they will.

* * *

THE ALMOST HUMAN HORSE.—Some two years ago the scientific world of Germany was for a moment much agitated with the wonderful performances of the "Miracle of Nature," as he was called, a learned (?) horse, better known as "Hans." Was he of German origin? I do not know, but he exhibited his superior qualities in Germany, his master was a German, he understood German, and a commission of German scientists was appointed to scientifically study this wonderful subject. The commission has never reported.

Of course, not to be backward in this line, England has recently had another wonder in the equine race: it is the "thinking horse," "Princess Trixie!" She has received special education and is said by her owner to possess the power of responsive intelligence which is equivalent to that of an average child of six years of age. I am not acquainted with any of the proofs she may have given of such superiority over other animals of her kind. But as she is American, that when she came to England she understood American money, and could calculate in dollars and cents, and since she knows as much in English shillings, it cannot be wondered at that she has already made rapid progress in German, so as to be prepared to be presented to the German Court, where her owner has been conveyed in her company.

Through the professional journals of England, I read that the following committee has been appointed to study her case and decide the vexed question relating to the charming "Prin-

cess": Lord Decies, Sir Edmund Loder, Bart., Sir Edward Ward, K.C.B., Sir Martin Conway, Dr. Chalmers Mitchell, D.Sc. (Secretary to the Zoölogical Society), Dr. F. S. Batten, M.D., F.R.C.P., Colonel Benson, Major Meredith (1st Life Guards), Captain Nicholas (Superintendent of the Royal Mews), Captain Simpson, Mr. R. Craig McKerrow, Mr. R. Innes Pocock (Superintendent of the Zoölogical Gardens), Mr. Arthur J. Coke (Secretary of Our Dumb Friends' League), Mr. James Simpson, F.R.C.V.S., Mr. W. Mulvey, F.R.C.V.S., Mr. F. Hobday, F.R.C.V.S., F.R.S.E., Mr. W. Bower, M.R.C.V.S. (Veterinary Surgeon to H.M. the King's Racing Stud), Mr. F. H. Ridler, M.R.C.V.S., Mr. E. K. Robinson (editor of *The Countryside*), Mr. A. E. Gostling, M.R.C.V.S., Mr. W. Willett, M.R.C.V.S.

It is gratifying to see the names of so many well-known veterinarians in such good company. But it would be funny, if this turned out another "Hans" affair!

* * *

BIBLIOGRAPHY.—I have received from the house of Bailliere, Tindall & Cox, of London, a copy of a little work entitled "*Notes on Blood Serum Therapy*," by Walter Jowett, F. R. C. V. S., D.V. H., formerly demonstrator of comparative pathology and bacteriology in the University of Liverpool. The book is written for veterinary practitioners and students. Containing 200 pages and 47 illustrations, the contents are divided into five chapters, the first on immunity, the second on the methods of conferring it, the third on the diseases due to ultravisible viruses, the fourth on diseases due to protozoa and the fifth treats of toxines and serum diagnosis. There is also an appendix giving weights and measures, one on notifiable diseases, then a general bibliography and references, with a few notes on the occurrence of spirochatæ in equine canker and grease. This little volume, although it seems a compilation from the works of many investigators, is a valuable acquisition for the lucid description given by the author, and it will prove to practitioners and students most interesting and valuable. The explanation of Metchnikoff's theory, of the Erlich and

Opsonic theory are plainly brought to the understanding of the reader. The various methods of conferring immunity receive a very good consideration and the diseases of the ultravisible viruses and those due to protozoa are referred to according to the most recent researches. The preparation of tuberculin and of mallein, with the agglutinating and precipitating tests receive also a very lucid consideration. As a whole, the book is interesting, instructive and is deserving of warm recommendation. The American publishers are W. T. Keener & Co., of Chicago, from whom it may be obtained.

* * *

In May, 1905, I reviewed the first part of the "*Manuale di Anatomia Comparata Degli Animali Domestici*" (Manual of comparative anatomy descriptive of the domestic animals), by Doctor Teresio Mongiardino, Professor at the Superior Royal Veterinary School of Turin. To-day it gives me much pleasure to notice the second volume of the work. I have already said how good the first volume was and what a valuable acquisition it was to Italian veterinary literature. I could say no more while speaking of the closing part of the work, except perhaps that it is superior. Made of over 500 pages and illustrated with 272 plates, original or reproduced from the classical work of Chauveau, to which due credit is given, the book of Dr. Mongiardino is written in a manner which renders its reading less tiresome than most works on the same subject are and its arrangement is such that any one interested in reviewing anatomy will certainly read it with great relish. This *vade mecum* is certainly an excellent work.

* * *

Among other sundries coming from America which are on my desk, I am pleased to mention: The *Chicago Veterinary College Quarterly Bulletin*, that of the Kansas Veterinary College, Bulletin 89 of the Agricultural Experiment Station of Louisiana, with the article from Dr. Dalrymple on "Nodule Disease of the Intestines of Sheep," the rules and regulations of

the State Board of Veterinary Examiners of Tennessee, and finally from my friend and scholar a kind invitation to the meeting of the Ohio State Veterinary Association, for which I send him my thanks and regrets to not have been able to attend. In closing, I have just opened my last mail and find a pamphlet from Dr. A. Pirocchi on "*Altre esperienze sulla durata della digestione nei bovin*" (other experiments upon the duration of digestion in bovines).

* * *

OBITUARY.—It is my sad duty, in closing this chronicle, to record the death of two veterinarians whose names are known all over the world and whose professional works will forever remain spoken of in veterinary and scientific societies.

Professor Thomassen, of the Veterinary School of Utrecht, Holland, died in December last from haemorrhage, which carried him off at the age of 59. A man of great talent and one of the most learned teachers of the School of Utrecht, the veterinary profession owes to him two important discoveries: the efficacy of the treatment of actinomycosis with iodide of potassium, and the pathogenous microbe of infectious enteritis of calves.

Professor Thomassen held the degree of Doctor of Medicine, granted *honoris causa* by the University of Grönningue.

Hardly had Holland lost Thomassen, one of her most illustrious sons, than Belgium in turn paid her debt to the death roll in losing Dr. L. Wilhems, who died at the handsome age of 85 years. The veterinary profession owes him an everlasting tribute of honor for his discovery of the preventive inoculation of contagious pleuro-pneumonia of cattle, which has been practiced all over and in every country where this disease prevailed, with more or less success, and which has even to-day many advocates and admirers. Of course, the Wilhems method as practiced to-day is no longer that preconized by the veterinarian that Belgium mourns.

A. L.

WHAT THE AUTOMOBILE HAS DONE FOR THE HORSE.

At the close of the last century and the beginning of the present one the automobile began in earnest to retire the horse from all service and companionship of man, and the automaniacs declared with a confidence worthy of better judgment that the length of time it would require to accomplish his total disappearance was in direct proportion to the ability of the manufacturers to turn out motor vehicles to take his place. The more enthusiastic of the automaniacs ventured the prediction that no museum of natural history of the next generation would be complete without a properly mounted skeleton of the horse, in order that our progeny may know of the dark age when this creature was the servant of man, universally used to draw the pleasure carriages and bear the burdens of the denizens of the earth prior to 1900, while our forefathers and mothers actually rode upon their backs in the delusive pursuit of health and happiness.

Always striving to be a faithful chronicler of the progress of events which have a bearing upon our profession, the REVIEW has watched with interest, though not with confidence, the fulfillment of these bombastic predictions, and it finds much food for thought and reflection in the report of the Secretary of Agriculture of the United States Government, which has just been issued. As showing just how the new industry is accomplishing its rather large undertaking, the report is not only instructive, but it is prophetic. It is true that a decade has not yet elapsed, but seven-tenths of one has, and it is well to take account of stock as we go along.

At the time the extinction of the horse began there were, according to official figures for the beginning of 1900, 15,624,000 horses and mules in the United States, valued at \$715,787,000. On January 1, 1907, they had increased to 23,564,000 valued at \$2,274,642,000—or an increase in numbers of about 8,000,000 (about 50 per cent.) and a rise in value of \$1,558,855,000 (about 112 per cent.). Remarkable as these statistics appear

for the period under consideration, the figures for the years 1905 and 1906 are bewildering, for in the *four* years immediately following the advent of the automobile, the value of these animals only advanced \$736,363,000, while in the last *two* years they have risen \$822,492,000.

Nor can this condition be explained away upon the ground that the great increase in population has made the growth of horses only apparent, for a study of the industry since the middle of the last century will show that they have increased in greater proportion than have the human inhabitants. When the seventh census was taken in 1850 the population of the United States was 23,192,000, and there were 4,894,000 horses and mules in the country, or one for every 4.75 persons (about one-fifth as many horses as there were people). Since that time the horse has been displaced by motive power in some of his chief employments. He was then almost the sole means of transportation on land, and even the canal system gave him work in drawing its boats. There were in those days less than nine thousand miles of railroads in the United States, while today the country is gridironed by about a quarter of a million miles of their tracks, there are thousands of miles of electric street railways, to say nothing of 100,000 or more automobiles which have been thrown in his pathway to hurry his extermination. A conservative estimate of the population of the United States at the present time is 87,000,000 people, and, as above shown, 23,564,000 horses and mules, or one for every 3.66 persons (more than one-fourth as many horses as people). And in the light of the rapid growth of these animals in the last two years, they are increasing very much greater in proportion than the human population. With all this, the supply is not commensurate with the demand, for important dealers declare that the task of keeping their stables stocked is becoming more difficult every day.

While the soliped has eclipsed all records in the history of the world, the American mule has more than held his own in the general advance, for while his total value was \$251,840,000

in 1905, in two years it has leaped to \$428,064,000, a sum estimated by the well-informed New York *Herald* to be "greater than the value of all the automobiles in the country, including \$100,000,000 worth now on the scrap-heap;" and the same authority further states that "it will keep the motor busy to catch up with the long-eared hybrid whose top note so resembles its own."

In view of the satisfactory condition of veterinary practice, and the solid and safe position of our chief patient, the profession can complacently watch the profligate expenditure of printer's ink through the medium of which manufacturers of motor vehicles are endeavoring to convince the public that they are closing the career of the horse. But in the meantime, should purse-strings tighten through financial or commercial strin-gency, what a balloon would burst in Broadway !

THE EXISTENCE OF RABIES.

In the face of absolute scientific evidence of the alarming increase of rabies in many sections of the United States, it is revolting to observe such utterances as are contained in the following letter from Mr. George T. Angell, editor of a paper called *Our Dumb Animals*. We believe that Mr. Angell is the head of a society in Boston to prevent cruelty to animals, but the display of wilful ignorance which he makes in the face of overwhelming scientific evidence of the extensive prevalence of this loathesome and deadly disease is unpardonable, and stamps him as unfitted to hold any position where such sentiments as he expresses may lead to the sacrifice of valuable human and animal lives. The positive proofs which are daily given by the agonizing deaths of human beings and all species of animals; the laboratory proofs of reproducing the disease by inoculation of the virus from a rabid dog to guinea-pigs, rabbits, dogs, and other small animals; the entrance of a mad dog into a barn where horses and cattle are bitten and afterwards become affected by the same disease; and many other circumstances

sufficient to make it a positive proposition to a sane mind, have no power to convince such men; they will not see; they prattle in the same old strain that maintained some years ago before science laid bare the most convincing evidence of its existence and prevalence. Then, the only way to treat such fanatics is to cast them out of the public view, or to muzzle them at the same time that the dogs are. Mr. John P. Haines, of the New York branch of the American Society for the Prevention of Cruelty to Animals, gave voice to similar "opinions" a few years ago, but he is effectually quieted by being relieved of a trust which his *confrères* openly charge was mismanaged upon a large scale, and we respectfully recommend the same course with his Boston brother. The question is no longer susceptible of two interpretations; the evidence is positive and repeatedly produced; patience with such sloths is out of argument.

The following is Mr. Angell's letter, which appeared in the St. Paul (Minn.) *Dispatch* of March 2:

"We have received some very painful letters on the above subjects, to which we can only answer that we have been doing all we can for the protection of dogs, and wish we could do a great deal more. During the past more than thirty years we have been called many times to the State House to oppose their muzzling, and have never failed in a single instance to convince the committee that there was no need of muzzling. We have at different times had various cases of alleged rabies investigated by our officers, without finding in a single instance evidence to warrant a belief in its existence. Dr. Charles W. Dulles, of Philadelphia, professor in the Pennsylvania University, and an eminent physician, was appointed by the Pennsylvania Medical Society many years ago to investigate the subject, and has ever since given more attention to it, perhaps, than any other man either in Europe or America, and is convinced that cases are so extremely rare as to make it doubtful whether it is anything more than a disease of the imagination. In all the great collections of dogs in this country and Europe, we think not a single instance can be found where any animal or human being in charge of these animals has had the disease. In Constantinople, where thousands of poor vagrant dogs wander in the streets, there was never an instance known. But

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since this Pasteur business has become so prominent, the reported malady seems to have terribly increased. Very soon after Pasteur's alleged discovery, the cases, we understand, became quite numerous in France, while in Germany, just across the Rhine, they were almost unheard of. We have no doubt that dogs, like human beings and horses, may be liable to epidemics, but whether those epidemics have anything to do with rabies is another question. Dr. Dulles thinks all these Pasteur institutes are of no use, except to put money into the pockets of the doctors who are connected with them.

"Of course we are not competent to decide this matter, but we are strongly of the opinion that if Pasteur had never lived and performed his numerous experiments on living animals there would be no more need now of muzzling dogs in America than there was in the hundred years before this vivisector was ever heard of."

"THE REVIEW gets better with each issue."—(*George R. Young, D. V. S. Omaha, Neb.*)

"THERE is but one serious fault with the REVIEW—it should come weekly instead of monthly."—(*W. V. Lusk, Vet. U. S. Army, Fort Assinniboine, Mont.*)

BUREAU OF ANIMAL INDUSTRY INSPECTORS are much pleased with the change of their title from "Meat Inspector" to "Veterinary Inspector," as it is more comprehensive and dignified.

COLORADO is having the usual experience of states with new veterinary laws: A bill has been introduced in the Legislature to compel the Board of Veterinary Examiners to register, without examination, "any person who has been in continuous practice of veterinary surgery, veterinary dentistry, or veterinary medicine for a term of ten years or more in the State of Colorado . . . upon such person establishing such fact before the Board of Veterinary Surgeons by the testimony of twelve or more reputable and competent witnesses and upon paying like fees as in other cases. The person so licensed shall be known and deemed in law a veterinary surgeon." A very vigorous protest has gone up from the veterinarians, and many have appeared before the committee of the House to which the bill was referred. Among the most forceful of the objectors was Mark White, of Denver, who is as energetic in such matters as his Tennessee brother, George R. White.

ORIGINAL ARTICLES.

NEUROTOMY IN THE HORSE.

BY DR. THEODOR SCHMIDT,

First Assistant of the Surgical Clinic of the Royal Veterinary High School in Vienna.

TRANSLATED FOR THE REVIEW BY DR. A. T. PETERS,
Professor of Animal Pathology in the University of Nebraska, Lincoln, Nebraska.

The above subject has for many years been discussed by a great number of authors, so that a complete literature already exists on this phase of veterinary surgery. I cannot tell my colleagues much that is new, but I believe I should publish my own experiences in private practice from 1898 to 1904 and then in the surgical clinic at Vienna; for, with an abundance of material, many interesting observations were made, and many of the horses operated on remained under professional control for a long time (up to six years), as is more practicable in private practice than in the clinic, where very often (at least with us at Vienna) the patients after leaving the hospital are not seen again.

I should like to mention, also, that I performed the operations with my colleague, Franz Starzinger, Vienna, who assisted me in the more difficult surgical cases as counsel, so that I operated in a great majority of cases with his assistance. In a part of the cases he operated with my assistance.

We were greatly aided by a simple operating table constructed by Starzinger. This permitted a great saving of assistants, two men being sufficient, and at the same time a perfectly safe fixation of the extremities, with more cleanly work than a heap of straw would allow.

My colleague, Starzinger, to whom was left the further treatment of the patients in his clinical stables, also spared no pains, which I should like to emphasize, to keep and to control the cases in evidence.

A large portion of the cases I have, myself, been able to see again and study several years after the operations.

Since I present the cases in the form of short histories, wherein are noted the most important data concerning the diagnosis, operation, recovery and other observations, I should like to mention that most of the horses had already been treated for a month previously without success, so that in very many cases in consequence of their disability for any kind of service, their value was reduced to that of their flesh.

On the anterior limbs nerve resections were performed on 96 horses, with 167 single nerves, as the following table shows:

	Horses	Nerves	Remarks
Left median and ulnar nerves	40	80	
Right median and ulnar nerves.....	16	32	
Right median nerve....	20	20	
Left median nerve.....	13	13	
Both right and left median and ulnar nerves.....	1	4	Case 74 at one time on both limbs.
Both right and left median and ulnar nerves.	1	4	Case 7, interval of 6 weeks.
Right and left median nerve	1	2	Case 23, interval of 4 months.
Right median nerve, left median and ulnar nerves	1	3	Case 82, at one time.
Right median nerve, left median and ulnar nerves	1	3	Case 87, interval of 6 months.
Left volar nerves.....	1	2	
Left volar nerves and then the median and ulnar nerves	1	4	Case 22.
Total.....	96	167	

If I add the cases operated on while I was connected with the Surgical Clinic of the Veterinary Institute from 1893 to 1897 and after I again entered the Veterinary High School (1904), the number of horses on the anterior extremities in which I have performed neurotomies amounts to about 120.

If we group the cases according to the diagnosis, first on the right anterior extremity, 8 times on account of thickening of the flexor tendon, 6 times on account of thickening of the flexor tendon, and a moderately contracted position, 6 times on account of ringbone.

ANTERIOR EXTREMITIES.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
1	6 years old. Light road horse. Gelding.	Exostosis on left ankle, lame when bought.	Blistered.	Dec. 18, 1898.	Left median nerve. Healing by first intention with slight swelling. Placed in to be destroyed after two years service after 14 days. Not lame.	Extensive growth of wall of hoof on the operated limb. Had to be destroyed after one year.
2	13 years old. Heavy draught horse. Mare.	Ringbone on left coronet. One number of times standing without results. Very lame.	Blistered. Chronic periostitis at right ankle.	March 24, 1899.	Left median nerve. Healing by second intention. Allowed to work after 3 weeks. Not lame.	Had to be destroyed after one year.
3	6 years old. Driver. Mare.	Ringbone on left ankle. When trotting very lame.	Blistered. Puncture fired.	June 6, 1899	Right median nerve. Healing normal. Working after 3 weeks. No lameness.	Results not known.
4	7 years old. Light driver. Mare.	Ringbone on left ankle. When trotting very lame.	Blistered. Blistered. No results.	June 15, 1899.	Left median nerve. Healing by first intention. Working after 14 days. Not lame.	Irritation (?) The wall of the hoof became hard, rough, and not brittle. After one year's good service a large penetrating crack appeared on upper hoof, which, through the carelessness of the owner became inflamed. Sloughing of the hoof. Had to be destroyed.
5	5 years old Light driver. Mare.	Chronic periostitis at right pastern joint.	?	June 15, 1899.	Right median nerve. Healing by second intention, great swelling of the extremity	Unknown.
6	7 years old. Light driver. Mare.	Chronic periarthritis of the left front pastern.	Blistered.	July 29, 1899	Put in service 3 weeks after the operation. No lameness.	Two years after the operation, distinct enlargement of the suffraginis. Free motion at the fetlock joint. Hyperesthesia in the extremity operated on. Horse would not allow the limb operated on to be touched.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
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No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
7	7 years old. Light driver. Mare.	Ringbone of the left fore foot. Ringbone of the right fore foot.	Blistered. Blistered.	August 18, 1899.	Left ulnar nerve. In ser- vice after 14 days. No lame- ness.	Good service in carriage up to Jan., 1904. During this time a hard gall occurred twice in con- nection with slight lameness. Sold in Jan., 1904, to be used on a one-horse vehicle, and then in service up to Nov., 1904.
8	8 years old. Light driver.	Chronic periar- thritis of the right pastern. Lame when bought.	..... .....	July 27, 1899. October 9, 1899.	Left median and ulnar nerve. Healing by first inten- tion. Right median and ulnar nerve. Healing by first inten- tion.	In Oct hard gall with loosen- ing of the coronary band. In Nov., 1899, nail puncture, ulnar suppuration of the sensitive frog, sloughing of the hoof.
9	16 years old. Driver. Mare.	Ringbone on the left pastern.	Puncture fired blistered.	Sept. 4, 1899.	Right median and ulnar nerve. Healing by first inten- tion. In service 10 days after the operation.	In the course of some months there developed on the posterior side of the carpus, considerable exostosis, which after a time again became smaller. After 1½ years of good service the animal was destroyed on account of fracture of the os centrale and os cuneiforme tertium following re- section of the tibial and peroneal nerve. (See No. 61 under pos- terior extremities.)
10	5 years old. Light driver. Gelding.	Chronic perios- titis of the left pas- tern joint. Lame for four months.	Blistered.	Sept. 9, 1899.	Left median and ulnar nerve. Healing by first intention. Unknown.	Suddenly during work oc- curred sloughing of the hoof after 6 days' service, so we were in- formed. Details not to be learned.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
11	4½ years old. Light draught. Mare.	Splint (?) on left.	Blistered.	Oct 9, 1899.	Left median and ulnar nerve. Healing by first intention. Discharged after 14 days.	Unknown.
12	12 years old. Light driver. Gelding.	Sidebone on the left coffin joint. Lame one year.	Blistered, punc- ture fired, blis- tered.	Sept. 22, 1899.	Left median and ulnar nerve. Healing of the ul- nar wound by second inten- tion, exuberant granulations.	No change in the sidebone. Up to Jan., 1904, good service. Destroyed.
13	8 years old. Stallion.	Painful tendon callus of tenoto- my of right fore foot.	.....	July, 1899.	Right median and ulnar nerve. Normal healing.	After 3 months' good service the foot was pricked by a nail. This followed by purulent in- flammation of the sensitive wall and sole of the foot. Sloughing of the hoof.
14	11 years old. Light draught horse. Mare.	Chronic pastern lameness (?) left fore foot.	?	Sept. 24, 1899.	Left median and ulnar nerve. Healing by first in tention. In service 3 weeks time. after operation.	The horse endured very hard work as a trotter the entire time. Hyperesthesia of the skin in the extremity operated on. In 1903, destroyed on account of viciousness.
15	10 years old. Heavy draught horse. Gelding.	Sidebone of left fore foot. Lame for one year.	In spite of all treatment lame for one year.	Oct. 4, 1899.	Left volar nerves. Heal- ing by first intention. Healed after 8 days.	Horse still in service in Nov., 1904, at heavy driving work. Hard galls have appeared sev- eral times without injury on the hoof operated on.
16	2½ years old. Heavy draught horse. Gelding.	Pastern lameness. Rest for two months.	?	Oct. 10, 1899.	Left median and ulnar nerve. Healing by second intention. Exuberant gran- ulations at the place of the ulnar operation.	One year's service at heavy work. Itching in the extremity operated on. Sold after one year on account of bad pulling.
17	5 years old. Light driver. Gelding.	Chronic peri- ostitis on splint and periartthritis on right pastern joint.	?	Oct 10, 1899.	Right median and ulnar nerve. Healing of median oped, a quarter crack wound primary, of ulnar appeared, but was cured by oper- ation. Animal then sold and changed after 9 days.	In a few weeks a splint devel- oped. In 1902 a quarter crack wound secondary. Dis- tance. Animal then sold and lost sight of.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
18	7 years old. Heavy draught.	Bone enlargement of the left pastern	.....	Oct. 11, 1899.	Left median and ulnar nerve. Healing by second intention.	Oct. 8, 1899, destroyed on

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks about Operation.	Course of Operation.
18	7 years old. Heavy draught horse. Mare.	Bone enlargement of the left pastern Lame $\frac{1}{2}$ year.	Blistered twice.	Oct. 11, 1899.	Left median and ulnar nerve. Healed Oct. 24.	Oct. 8, 1899, destroyed on account of a large stone falling on the hoof.
19	8 years old. Heavy draught horse. Mare.	Thickening of the left flexor tendon.		Oct. 31, 1899.	Left median and ulnar nerve. Healing by primary sloughing of the hoof following intention.	Good service. In Nov., 1901.
20	13 years old. Light driver. Stallion.	Chronic periarthritis. Sidebone of the right front fetlock.	?	Oct. 30, 1899.	Right median and ulnar nerve. Primary healing. Discharged Nov. 8.	Horse immediately put to work. After 6 days' service, during severe drive, occurred fracture of right anterior os suffraginis. Examination revealed an entirely new splintered or comminuted fracture. No trace of a preexisting fissure.
21	10 years old. Light driver. Stallion.	Ringbone of left fore foot. Very lame.	Puncture fired without result.	Nov. 9, 1899.	Left median and ulnar nerve. Primary healing. Healed Nov. 20.	Destroyed in June, 1901, on account of fistula of the coffin cartilage in the operated foot.
22	7 years old. Light driver. Gelding.	Ringbone of the left front fetlock.	Fired, blistered. No results.	Nov. 14, 1899.	Left volar nerves. Primary healing. Lame ness un- changed. Second neurectomy of the median, lame ness, third, neurectomy of the ulnar nerve, with success.	Three months' good service. Then after a leap over a ditch, partial rupture of the flexor tendon of the coffin bone. Destroyed.
23	12 years old. Heavy draught horse. Stallion.	1. Thickening of the tendon of the right fore foot. 2. Thickening of the tendon of the left fore foot.	Line fired. No result.	Nov. 27, 1899	Right median nerve. Primary healing.	Good function. Sold in 1901.
24	7 years old. Light driver. Gelding.	Chronic periarthritis on the inside of the right pastern joint.	Blistered.	April 7, 1900.	Left median nerve. Primary healing.	Right median and ulnar nerve. Primary healing. Discharged Dec. 24.
				Dec. 14, 1899.		After 9 months oblique fracture of metacarpus of operated extremity in upper third on rising in stall. In a few days suppurative swelling from hoof to above carpus.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Course of Operation.	
					Remarks About Operation.	
25	Stallion. 5 years old. Heavy draught horse.	Moderately painful. Thickening of the flexor tendon. Swelling of the os suffraginis, a more vertical position of the same bone of left fore leg. Lame for several months. Sores. Proposed to use him no longer.	Dec. 2, 1899.	Left median nerve. Healed by first intention, Dec. 10. Discharged at once.	I. One year after the operation superficial hard gall, causing slight lameness. 2. May, 1903, bad nailing followed by lameness. 3. Feb. and March, 1904, fistula of the alar cartilage in the limb operated on, followed by recovery. December, 1904, still in service. It is interesting to note that there is present the throwing motion of the foot as in contracted hoof. The hoof in the carrying portion is very wide, a diminished growth of horn is present.	
26	Gelding. 10 years old. Light wagon horse.	Swelling of the left anterior fetlock.	Blistered.	Jan. 18, 1900.	Left median and ulnar nerve. Abscess on the ulnar scar Discharged Feb. 1. In use since Feb. 10.	In the beginning of 1902, contusion of the sole on account of shoe being short. Phlegmon, sloughing of the hoof threatened, animal destroyed.
27	Gelding. 5 years old.	Chronic periarthritis below the first carpal joint (jerking of left hind foot).	Blistered.	Jan. 27, 1900.	Left median and ulnar nerves. In use since Feb. 10.	Immediate operation on the left hind foot (tenotomy of the lateral extensor). Complete result. Sold after one month. The new owner drove the horse three months, then sold him to the horse butcher since the animal was in his opinion worn out.
28	Stallion. 10 years old. Heavy draught horse.	Hyperostosis of the right anterior fetlock. Lame for two months.	Blistered twice.	Feb. 5, 1900.	Right median nerve. Lameness somewhat less.	After the operation a fairly solid oedema appeared from the coronet to the carpal articulation. 14 days after being placed in service, fracture of the right anterior fetlock. Not studied anatomically. Preexisting fissure?

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Course of Operation.	
					Remarks About Operation.	
29	Gelding. 6 years old. Heavy draught horse.	Thickening of the right anterior peatedly.	Blistered re-	Feb. 13, 1900.	Right median nerve with result	Tendon thickening disappa-

No.	Description	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
29	Gelding. 6 years old. Heavy draught horse.	Thickening of the right anterior pectoral tendon. Vertical position of the fetlock, uniform enlargement of the os suffraginis, considerable lameness, sores.	Blistered repeatedly.	Feb. 13, 1900.	Right median nerve with result.	Tendon thickening disappeared, likewise the enlargement of the os suffraginis. Hoof became wider. Frequently, a hard gall without injury. Dec., 1904, still in service.
30	Mare. 8 years old. Hungarian driver.	Lameness of left anterior coffin joint, oval hoof, rather vertical carrying walls, lame for a long time.	?	March 3, 1900.	Left median and ulnar nerve. Lameness disappeared.	After two months, without known cause, loss of hoof. During the process the coronary band became loosened, bleeding. On the second day a severe oedema up to the middle of the tibia. On the third day, sloughing of the hoof. After the neurotomy the horse was again serviceable. After nine months he again goes lame, showing thickening and shortening of the tendon. Vertical position of the fetlock. Destroyed.
31	Gelding. 8 years old. Heavy draught horse.	Painful tendon callus after tenotomy of the flexor pollicis tendon along anterior coffin of the tibia bone. 8 weeks thickened, painful after tenotomy he especially in the was out of service, region of the calcanen gradually lus. Lameness grew worse.	Five months	March 14, 1900.	Left median nerve with result.	
32	Gelding. 10 years old. Light draught horse.	Thickening of flexor tendon of right fore foot. No contraction.	Blistered.	March 13, 1900.	Right median nerve with result.	Hard gall on the foot operated on, recovery. In the summer of 1904, still in service.
33	Stallion. 9 years old. Heavy draught horse.	Thickening of the flexor tendon of left fore foot.	.....	May 29, 1900.	Left median nerve with result.	Destroyed after three months on account of viciousness.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
34	Mare. 11 years old. Hungarian driver.	Chronic periarthritis below right anterior "knee,"	.....	June 7, 1900.	Right median and ulnar nerve with result.	After very hard usage (often day and night service) sloughing of the hoof in the summer of 1901.
35	Gelding. 6 years old. Light draught horse.	Moderately blistering of the flexor tendon with vertical foot of the right fore limb, thickening of the os suffraginis. Lame for one year, unserviceable.	Repeatedly blistered and cauterized.	June 12, 1900.	Right median nerve with result.	Considerable improvement of the contracted position. Horse was always used in heavy driving work (hauling trunks). Gradually there developed a new contracted position. On left fore leg also appeared thickening of flexor tendon and its sheath on account of which the animal was destroyed in summer of 1901.
36	Gelding. 12 years old. Heavy draught horse.	Chronic periarthritis of the left anterior fetlock has persisted for a long time; owner stated, swelling of is willing to have os suffraginis, animal destroyed. Horse unserviceable.	Repeatedly treated. Lameness	June 3, 1900.	Left median nerve with result.	Disappearance of all symptoms, so that nothing abnormal is perceived by inspection and palpation. No complications. Dec., 1904, still in service (used in hauling loads)
37	Gelding. 7 years old. Heavy draught horse.	Thickening of the flexor tendon of right fore foot. Very lame. Lame when bought.	?	July 31, 1900.	Right median nerve with result.	16 months in service, then sold.
38	Stallion. 16 years old. Heavy draught horse.	Thickening of the flexor tendon of right fore foot. Slight contraction. Ringbone of right anterior pastern joint. Very lame.	Cautery. Lameness.	Aug. 19, 1900.	Right median nerve with result.	Still in service in the summer of 1904.
39	Stallion. 6 years old. Heavy draught horse.	Ringbone of right anterior pastern joint. Very lame.	Blistered.	Oct. 17, 1900.	Right median nerve alone, without result.	On this account destroyed.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
40	Stallion. 10 years old.	Thickening of the flexor tendon	?	June 2, 1900.	Right median nerve. Slight decrease in lameness.	Horse sees further service through lame.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
40	Stallion 10 years old. Heavy draught horse.	Thickening of the flexor tendon of right fore foot. Moderate lameness.	?	June 2, 1900.	Right median nerve. Slight decrease in lameness.	Horse sees further service though lame.
41	Gelding. Gray. 6 years old. Draught horse.	Thickening of flexor tendon left hindfoot, slightly vertical position of fetlock, exostosis of os suffraginis.	Line fired and blistered.	Oct. 24, 1900.	Left median nerve with result.	1904, still in use.
42	Gelding. Chestnut. 6 years old. Heavy draught horse.	Thickening of flexor tendon of right fore foot. Very lame.	Blistered and then line fired.	Oct. 27, 1900.	Right median nerve with result.	1904, still in service.
43	Gelding. Gray. 5 years old. Heavy draught horse.	Thickening and contraction of the superior sesamoid ligament of right fore foot.	Blistered.	Nov. 6, 1900.	Right median nerve. Slightly beneficial.	After 4 months, lameness appeared on the left fore leg and animal was destroyed.
44	Mare. 10 years old. American trotter.	Periarthritis on the right anterior puncture fired.	Blistered and then anterior puncture fired.	Dec. 1, 1900.	Right median nerve. Lameness decreased.	After 6 weeks again very lame.
45	Gelding. 6 years old. Light draught horse.	Sidebone left fore fetlock.	Blistered, puncture fired.	Dec. 11, 1900.	Left median nerve with result.	.....
46	Gelding. 14 years old. Running horse.	Ankylosis of the left fore fetlock blistered and cauterized.	Repeatedly blistered, thickened.	Jan. 3, 1901.	Left median and ulnar nerve with result, except the rupture of the flexor tendon of the sesamoid bones during a race. Post mortem. The ruptured tendon was completely fibrillated and infiltrated with deposit of lime salts as was also the parietal layer of tendon sheath. Bony ankylosis of the fetlock joint.	After six months of hard use, lameness disappeared.

No.	Description	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.		Course of Operation.
47	Stallion, 6 years old. Trotter.	Periarthritis at the left carpal joint. Thickening of the flexor tendon. Great lameness.	Blistered, fired, without result.	March 5, 1901.	Left median and ulnar nerve. Considerable edematous swelling that did not entirely subside.	From the oedema caused by operation, a chronic severe form of the skin and subcutaneous tissue from coronet to above car- pal joint. Chronic skin disease. After one year's service, slough- ing of hoof without known cause. Still in service in the autumn of 1904.	
48	Gelding. 14 years old. Draught horse.	Thickening of the flexor tendon of right fore foot. Hyperostosis of the fetlock. Lame for six months.	Blistered.	March 7, 1901.	Right median nerve. Good result.	Still in service in autumn of 1904.	
49	Black gelding. 9 years old. Heavy draught horse.	Thickening of the flexor tendon of right fore foot. Hyperostosis of the fetlock. Lame for six months.	Blistered.	March 7, 1901.	Right median nerve. Good result.	Said to be still in service in 1904.	
50	Gelding. 14 years old. Heavy draught horse.	Thickening of the flexor tendon of right fore foot. Hyperostosis of the fetlock. Lame for six months.	Blistered.	March 25, 1901.	Right median nerve. Good result.	Right median nerve with nothing known.	
51	Stallion, dark brown. 10 years old. Heavy draught horse.	Ringbone on the right fore fet- lock. Very lame.	Repeatedly treated.	April 15, 1901.	Right median nerve with nothing known.		
52	Mare. Gray. 15 years old. Driver.	Chronic arthritis of right fore fet- lock joint, bony tered. enlargement of os suffraginis, fissure. Lame suddenly 3 months ago.	Twice puncture fired and blis- tered. Great lameness.	May 3, 1901.	Right median and ulnar nerve upon request of owner. After 4 weeks of service frac- ture of the os suffraginis at its upper end.		

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.		Course of Operation.
53	Gelding. 10 years old.	Thickening of the flexor tendon	Line fired	June 3, 1901.	Left median and ulnar nerve.	Still in service in the fall of 1904.	

NEUROTOMY IN THE HORSE.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
53	Gelding. 10 years old. Heavy draught horse.	Thickening of the flexor tendon of left fore leg.	Line fired	June 3, 1901.	Left median and ulnar nerve.	Still in service in the fall of 1904.
54	Gelding. 10 years old. Heavy draught horse.	Thickening of the flexor tendon of left fore leg. Beginning contraction of the fetlock joint when bought.	?	June 7, 1901.	Left median and ulnar nerve.	Horse was repeatedly examined. The thickening disappeared so that the flexor tendon of the coffin bone is only a trifle thicker than that of the sound leg, likewise the vertical position of the fetlock became almost normal. Still in service, Dec., 1904.
55	Mare. 12 years old. Heavy draught horse.	Chronic periarthritis of the right anterior fetlock lame when bought.	?	June 17, 1901.	Right median nerve. Horse serviceable.	After 3 months sloughing of hoof, beginning with swelling on the coronary band and the limb to the middle of the metacarpus. In this case at the same time with the swelling great pain was noticed and also higher temperature at the scar of the operation of the median nerve.
56	Gelding. 7 years old. Light driver.	Chronic periarthritis of the right fore fetlock.	Treated for some time in the veterinary hospital.	June 17, 1901.	Right median and ulnar nerve. Lameness disappeared. Primary healing.	4 weeks after operation animal was discharged. Nothing abnormal noticed on extremity. After half hour's work, loosening of horny frog and heels with sloughing of hoof following in 2 days. Sold after 4 months.
57	Gelding. 7 years. Heavy draught horse.	Thickening of the flexor tendon of left fore leg.	.....	July 16, 1901.	Left median nerve with result.	
58	Gelding. 13 years old. Heavy draught horse.	Thickening of flexor tendon of left fore leg. Enlargement of os suffraginis, slight contraction, lame when bought.	.....	Oct. 8, 1901.	Left median and ulnar nerve with result.	Still in service in the fall of 1904.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
59	14 years old. Draught horse.	Thickening of the flexor tendon, enlargement of right fore fetlock.	Blistered.	Oct. 10, 1901.	Right median nerve. Lameness somewhat diminished.	?
60	Gelding. Draught horse.	Thickening of the flexor tendon of left fore leg.	?	Oct. 31, 1901.	Left median nerve with result.	?
61	Gelding. 14 years old. Heavy draught horse.	Thickening of the flexor tendon of left fore leg, slight contraction and enlargement of the fetlock.	Blistered.	Nov 14, 1901.	Left median and ulnar nerve with result.	Still in service in fall of 1904.
62	Gelding. 12 years old. Heavy draught horse.	Ringbone on left fetlock.	Blistered.	Dec. 2, 1901.	Left median and ulnar nerve with result.	Still in service in fall of 1904.
63	Gelding. 5 years. Heavy draught horse.	Arthritis and traumatic periar- thritis. 4 weeks thrits of the left fore fetlock joint, trial service, again suddenly lame.	Given a rest of 2 months. Blis- tered after 8 days.	Nov. 25, 1901.	Left median nerve. Lam- eness diminished. After 3 weeks, ulnar nerve with complete result.	After ulnar neurectomy the horse improved very rapidly and is put to daily work hauling 13 000 to 15,000 pounds. In Dec., 1904, still in service.
64	Mare. 10 years old. Driver.	Periarthritis be- low right carpal joint. Lame for 9 months.	.....	Dec. 10, 1901.	Right median and ulnar nerve with result.	Still in service in fall of 1904.
65	Gelding. 6 years old. Heavy draught horse.	Thickening of the flexor tendon of left fore leg.	?	Jan. 18, 1902	Left median nerve with result.	Reported still in service.
66	Stallion. 5 years old. Heavy draught horse.	Periarthritis of the left fore fet- lock joint. Lame for 6 months.	Blistered.	March 2, 1902.	Left median and ulnar nerve.	After 6 months severe lame- ness appeared. Swelling at the place of operation on the median nerve, this point extremely sensi- tive on palpation. Loosening of coronet. Sloughing of hoof.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
67	Gelding. 14 years old. Heavy draught horse.	Thickening of the flexor tendon of left fore leg.	Blistered.	March 28, 1902.	Left median and ulnar nerve with result.	Dec., 1904, still in service.

NEUROTOMY IN THE HORSE.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
67	Gelding. 14 years old. Heavy draught horse.	Thickening of the flexor tendon of left fore leg. Enlargement of the os suffraginis.	Blistered.	March 28, 1902.	Left median and ulnar nerve with result.	Dec., 1904, still in service, great reduction of the tendon thickening.
68	Gelding. 12 years old. Heavy draught horse.	Contraction of left fore leg with erythema, a great lameness.	Treated in veterinary hospital by blistering and cauterizing.	April 13, 1902.	Left median and ulnar nerve with result.	Contraction not reduced by the operation. In the spring of 1904, still in service.
69	Mare. 14 years old. Light driver.	Ossous side-bone of right fore and recommended to be destroyed.	Blistered, fired, fetlock, ?	April 19, 1902.	Right median and ulnar nerve, experimentally with still in service.	Used as a driver. Dec., 1904.
70	Gelding. 11 years old. Expresser.	Thickening of the flexor tendon. Ringbone of right fore leg.	Blistered, fired, ringbone of right fore leg.	April 28, 1902.	Right median nerve alone purposefully. Slight improvement. Owner would not consent to ulnar operation.	On account of continued lameness destroyed in four months.
71	Gelding. 5 years. Heavy draught horse.	Thickening of the flexor tendon of left fore leg.	Blistered, etc.	May 13, 1902.	Left median and ulnar nerve with result.	In fall of 1904, still in service.
72	Gelding. 5 years old. Light driver.	Ringbone of right fore leg. Very lame.	Blister.	June 3, 1902.	Right median and ulnar nerve, no lameness.	Sloughing of hoof after 6 weeks.
73	Gelding. 4½ years old. Heavy draught horse.	Thickening of the flexor tendon of right fore leg. Very lame.	Blistered.	July 11, 1902.	Right median and ulnar nerve with result.	Lost sight of after three months.
74	Gelding. 6 years old. Heavy draught horse.	Thickening of the flexor tendon of left fore leg. Lame 6 months.	Blistered, etc.	Aug. 23, 1902.	Left median and ulnar nerve with result.	In summer of 1904, still in service.
75	Gelding. 14 years old. Heavy draught horse.	Thickening of flexor tendon and ringbone on both fore limbs. Lame for over one year.	No treatment.	Nov. 10, 1902.	Median and ulnar nerve on both fore limbs with result.	After 3 months of good service, sloughing of the left hoof, after a nail prick while shoeing.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.		Course of Operation.
76	Mare. 18 years old. Trotter.	Ringbone on left fore fetlock, fired. Lame for two months.	Blistered and cauterized.	Feb. 3, 1903.	Left median and ulnar nerve with result.		After six weeks of hard driving at livery work suddenly a splintering fracture of the left anterior os suffraginis. Horse was driven after fracture for 3 miles without apparent lameness.
77	Gelding. 6 years. Heavy draught horse.	Thickening of the flexor tendon of left fore leg.	Fired.	Febr. 14, 1903.	Left median and ulnar nerve with result.		In fall of 1904, still in service.
78	Gelding. 14 years old.	Thickening of flexor tendon, side- cauterized.	Blistered and cauterized.	March 13, 1903.	Left median and ulnar nerve with result.		Good service or three months, then fracture of os suffraginis on account of severe work.
79	Gelding. 8 years old. Heavy draught horse.	Thickening of the flexor tendon, very lame of left fore foot.	Blistered and cauterized.	March 14, 1903.	Left median and ulnar nerve with result.		After 6 months' good service, sloughing of the hoof from bad shoeing.
80	Gelding. 6 years. Heavy draught horse.	Thickening of the flexor tendon of left fore foot. Flat hoof.	Blistered.	April 11, 1903.	Left median and ulnar nerve with result.		In summer of 1904, still in service.
81	Gelding. 6 years. Heavy draught horse.	Ringbone of left fore foot.	Blistered.	April 14, 1903.	Left median and ulnar nerve with result.		Oct., 1904, still in service.
82	Stallion. 18 years old. Heavy draught horse.	Thickening of the flexor tendon of both fore legs. Ringbone on left fore leg. Horse can't get up alone.	Blistered.	April 16, 1903.	1. Left median and ulnar. 2. Right median nerve with result.		Horse previously useless, now serviceable, last seen Oct., 1904.
83	Gelding. 12 years old. Light driver.	Ringbone of right fore fetlock. Very lame.	Blistered.	June 29, 1903.	Right median and ulnar nerve with result.		Still in service in fall of 1904.
84	Gelding. 16 years old. Light driver.	Chronic periarthritis of right fore fetlock, slightly lame for months.	Blistered.	July 17, 1903.	Right median and ulnar nerve with result.		After 4 weeks' service, fracture of the os suffraginis.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.		Course of Operation.
85	Gelding. 8 years old.	Exostosis of left fore fetlock joint.	Cauterized and blistered.	July 29, 1903.	Left median and ulnar nerve with result.		Oct., 1904, died from colic.

16 years old.
Light driver.
Laminitis of right fore
fetlock, slightly lame for months.

NEUROTOMY IN THE HORSE.

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No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
85	Gelding. 8 years old. Light draught horse.	Exostosis of left fore fetlock joint. After trauma very lame for one year, not serviceable.	Cauterized and blistered.	July 29, 1903.	Left median and ulnar nerve with result. 3 weeks later placed in service and continued therein.	Oct., 1904, died from colic.
86	Gelding. 14 years old. Heavy draught horse.	Ringbone of left fore leg. Lame for one year.	.....	Aug. 23, 1903.	Left median and ulnar nerve with result. After the sloughing of the hoof caused by operation considerable swelling of the fetlock, which remained constant.	After 3 months' good service, bad shoeing.
87	Stallion. 11 years old. Heavy draught horse.	Thickening of the flexor tendon of right leg. Thickening of flexor tendon and blistered.	Blistered and cauterized.	April, 1903.	Right median nerve. Slight lameness, which disappeared after a few weeks.	Good service (interfering boots necessary). Dec., 1904, still in service.
88	Gelding. 12 years old. Heavy draught horse.	Slight contraction. Lame 6 months. Not in service, being lame.	Cauterized and blistered.	Aug. 27, 1903.	Left, median and ulnar nerve with result.	Right median and ulnar nerve with result.
89	Stallion. 14 years old. Driver.	Thickening of the flexor tendon of right fore leg. Slight contraction of fore limb.	Cauterized and blistered.	Dec. 14, 1903.	Left median and ulnar nerve with result.	Dec., 1904, still in service. Contraction or limb disappeared.
90	Gelding. 16 years old. Heavy draught horse.	Ringbone above left front coronet. Treated 6 months, severe lameness.	Cauterized and blistered.	Dec. 15, 1903.	Left median and ulnar nerve with result.	Very good trotter. 3 months after the operation while training dropped dead. Post mortem showed rupture of heart.
91	Mare. 14 years old. Heavy draught horse.	Thickening of the flexor tendon and sheath of left fore foot.	Cauterized and blistered.	Jan. 12, 1904.	Left median and ulnar nerve with result.	Still in service in fall of 1904.
		Sidebone of left fore fetlock joint, knuckling of joint.				Dec., 1904, still in service.

No.	Description.	Diagnosis.	Pre Treatment.	Day of Operation.	Remarks About Operation.	Course of Operation.
92	Gelding, 6 years, Heavy draught horse.	Sidbone of left fetlock joint of blistered fore foot.	Cauterized and blistered.	Jan. 29, 1904.	Left median and ulnar nerve with result.	After 2 months sloughing of the hoof caused by shoe being caught in street railway track. Still in service.
93	Gelding, 8 years old. Heavy draught horse.	Exostosis below the carpal joint, blistered. Thickening of the flexor tendon and sheath of left fore foot.	Cauterized and blistered.	April 16, 1903.	Left median and ulnar nerve with result.	
94	Gelding, 8 years old. Heavy draught horse.	Thickening of flexor tendon and blistered. Sheath of left fore foot. Enlargement of os suffraginis.	Cauterized and blistered.	May 23, 1904.	Left median and ulnar nerve with result.	Still in service.
95	Mare, 6 years old. Heavy draught horse.	Thickening of flexor tendon and blistered. Sheath of left fore foot. Very great enlargement of os suffraginis. Very lame since spring of 1904.	Cauterized and blistered.	Nov. 17, 1904.	Left median and ulnar nerve with result.	Since Dec. 3, 1904, completely serviceable.
96	Stallion, 10 years old. Russian trotter.	Ringbone of right fore leg. Very lame.	Repeatedly blistered and cauterized.	Dec. 1, 1904.	Right median and ulnar nerve with result.	Good results.

I. OPERATION ON THE RIGHT ANTERIOR EXTREMITY.

4 times on account of chronic periarthritis at the carpal joint.
3 " " " " periostitis below the carpal joint.
3 " " " " periarthritis at the fetlock joint.
1 " " " " painful tendon callus following tenotomy.
1 " " " " hyperostosis of the os suffraginis.
1 " " " " thickening and contraction of the superior sesamoid ligament.
1 time on account of chronic arthritis of the fetlock joint, enlargement of the os suffraginis.
1 time on account of sidebone at the fetlock joint.
1 " " " thickening of the flexor tendon and its sheath and ringbone.

II. OPERATION ON THE LEFT ANTERIOR EXTREMITY.

13 times on account of thickening of the flexor tendon and its sheath.
9 times on account of ringbone at the fetlock.
8 " " " thickening of the flexor tendon and its sheath, thickening of the fetlock, moderately contracted position.
4 times on account of chronic periarthritis at the fetlock joint (sidebone of moderate size demonstrable).
4 times on account of sidebone (fetlock).
2 " " " chronic periostitis on the metacarpus.
2 " " " periarthritis at the carpal joint.
2 " " " lameness of the coffin joint (?)
2 " " " enlargement of the os suffraginis.
1 " " " hyperostosis at the fetlock.
1 " " " exostosis.
1 " " " chronic lameness of the coffin joint.
1 " " " ringbone and ossification of the coffin cartilages.
1 time on account of development of shortened tendon with vertical position of the foot.
1 time on account of painful tendon callus following tenotomy.

1 time on account of ankylosis of the fetlock joint, secondary contraction of the tendons.
1 time on account of traumatic arthritis of the fetlock joint.
1 " " " thickening of the flexor tendon and its sheath and sidebone (of the fetlock).
1 time on account of thickening of the flexor tendon and its sheath and exostosis below the carpal joint.
1 time on account of ringbone at the coronet.

III. OPERATIONS ON BOTH ANTERIOR EXTREMITIES.

Once on account of thickening of the flexor tendon with its sheath.
Once on account of thickening of the flexor tendon and its sheath and ringbone.
Once on account of thickening of the flexor tendon and its sheath on both sides and ringbone on the left side.

Altogether 41 horses were operated on for chronic lameness dependent on thickening of the flexor tendon and its sheath without vertical position of the fetlock, or with a slight or moderate degree of contracted position already present. Cases with a high degree of tendon shortening and vertical foot and demonstrable secondary changes in the bones, joints and ligaments of the phalanges were thrown out as unsuitable for the operation. Hence the cases with complications, *e. g.*, sidebone, etc., are not included. Of these 41 cases, 39 were in heavy draught horses and but 2 in light drivers, of which one (case 35) was put to heavy work, by which was brought about, as also in the 39 draught horses, pathological change in the so-called sixth head (strengthening ligament) of the flexor tendon of the coffin bone, a prognostic sign of doubtful value. In most cases the effect of the operation was satisfactory; the horses, often unserviceable for a long time, again became useful. Since results indicated that neurectomy of the median nerve alone was not always sufficient, neurotomy of the ulnar nerve also was later performed. After the operation the weight could be borne better on the fetlock, the vertical position usually became much lessened, or disappeared altogether, and in

the majority of cases a real decrease of the tendon thickening could be shown. In many cases no remarkable changes were perceived in the tendons, save perhaps an improvement of position with good service. Even an increase indeed (case 87) of the tendon thickening, with good functioning and improvement of a contracted position, could be demonstrated. In a few cases, after months a new increase of the tendon thickening and of the contracted position occurred. The appearance of thickening of the flexor tendon and its sheath as a sequel of neurectomy was never observed.

I should not fail to mention that, as in tenotomy, there is not immediately a complete return of the foot to the normal position, but that we at once removed the high calks and corrected the hoof to the inner side of both quarters. Only a slight elevation of the wall was allowed, which depended on the relation of the fetlock, now returning to a normal position.

I should like to mention five cases of tendon shortening with vertical position of the foot, in which we performed tenotomy of the flexor tendon of the coffin bone. Although we took all necessary precautions, gradually corrected the hoof and the shoeing, and did not put the horses in service until after a reasonable time, the results were not satisfactory. Other veterinarians have had similar experiences. In all five cases the contracted position gradually recurred with lameness, the formation of a painful, rather large tendon callus, increase in size of the extremity (severe oedema and sclerosis of the skin and subcutaneous tissue) as high as the carpus, so that we no longer performed the tenotomy, but recommended neurectomy to the owners, especially as this latter operation has been so satisfactory in tendon shortening with vertical position of the foot. In two of these cases of tenotomy (13 and 31), neurectomy was also performed. In case 13, an excellent draught horse, the animal again gave complete satisfaction in service. Unfortunately, after three months of service sloughing of the hoof occurred, in consequence of being pricked with a nail while being shod. Case 31 was likewise serviceable, but the

contracted position recurred after nine months of service.

In the 96 cases where the anterior extremities were operated on severe lesions developed, which made it necessary to destroy the animal in 26 cases (27 per cent. of the cases operated on) during the period of observation from December, 1898, to December, 1904. Of these 26 cases, 17 were sloughing of the hoof (17.7 per cent. of the cases operated on), 7 cases were fractures (7.2 per cent. of the cases operated on), 2 were ruptures of tendons (2 per cent. of the cases operated on).

Sloughing of the hoof was observed:

(a) without other known cause 7 times:

1. Case 9, driver, ringbone, 21 days after the operation after 6 days of service. (During this operation one of the mediano-radial veins was opened but tamponed. Tampon removed after 36 hours. Normal healing followed.)
2. Case 56, light wagon horse, chronic periarthritis at the fetlock joint, 4 weeks after the operation after a half-hour's drive.
3. Case 72, light wagon horse, ringbone, 6 weeks after the operation.
4. Case 30, driver, lameness of coffin joint, 2 months after the operation.
5. Case 55, heavy draught horse, chronic periarthritis at the fetlock joint, 3 months after the operation.
6. Case 66, heavy draught horse, chronic periarthritis at the fetlock joint, 6 months after the operation.
7. Case 47, driver, periarthritis at the carpal joint, 12 months after the operation.

(b) following a *nail puncture* while being shod in three cases:

1. Case 13, heavy draught horse, painful tendon callus following tenotomy, after 3 months.
2. Case 75, heavy draught horse, thickening of the flexor tendon and its sheath, ringbone, after 3 months.
3. Case 19, heavy draught horse, moderate shortening of tendons with vertical foot, after 2 years.

(c) following *contusion through the horse-shoe* twice :

1. Case 86, heavy draught horse, ringbone, after the operation chronic oedema and sclerosis of the skin of the extremity operated on, after 3 months.
2. Case 26, light draught horse, hyperostosis of the fetlock, after 2 years.

(d) once following *hard gall* :

Case 79, heavy draught horse, thickening of the flexor tendon and its sheath, flat hoof, after 6 months.

(e) once following *fissure of the horn* :

Case 4, Russian trotter, ringbone, after 1 year.

(f) once after *stepping on a nail* :

Case 7, light draught horse, ringbone, after 2 months.

(g) once after getting *caught in the street railway track* :

Case 92, heavy draught horse, sidebone at the fetlock joint, after 2 months.

(h) after *very hard service*, once :

Case 34, driver, chronic periarthritis below the carpal joint, after 1 year.

Fracture of the os suffraginis :

1. Case 20, driver, sidebone at the fetlock joint, during a hard drive, 16 days after the operation, 6 days after beginning service (excluding a pre-existing fissure).
2. Case 28, heavy draught horse, hyperostosis of the os suffraginis for 2 months, after 14 days' service (not examined anatomically, pre-existing fissure?)
3. Case 52, Russian driver, chronic arthritis of the fetlock joint, hyperostosis of the fetlock, suddenly lame 3 months ago, fissure (?), after 4 weeks of service (not examined anatomically).
4. Case 84, driver, chronic periarthritis at the fetlock joint for many months, after 4 weeks of service (not examined anatomically).
5. Case 76, Russian driver, ringbone, after 6 weeks of hard service.
6. Case 78, heavy draught horse, thickening of the flexor ten-

don and its sheath, sidebone, after 3 months.

Fracture of the metacarpus:

Case 24, light draught horse, chronic periarthritis at the carpal joint, after 9 months.

Rupture of the flexor tendon of the coffin bone at the height of the sesamoid bones:

1. Case 22, driver, ringbone, after 3 months of service in consequence of a leap over a ditch.
2. Case 46, trotter, ankylosis in the fetlock joint, thickening of the flexor tendon and its sheath, after 6 months (ossification of the tendon and tendon sheath).

(Concluded in May REVIEW)

STILLWATER, MINN., began the killing of all unmuzzled dogs on March 4. There has been so much rabies throughout the state that various sections have undertaken the extermination of every canine who has no responsible owner to obey the muzzling order. Large numbers of cattle and other animals have been bitten, and many persons have been forced to undergo the Pasteur treatment.

STALLION REGISTRATION IN MINNESOTA.—Minnesota is making an earnest effort toward securing a stallion registration law from the present Legislature, and with prospects of success. Some of the essential features of this law are: Verification and registration of pedigrees in the case of registered horses; veterinary examination of all stallions over four years; horses to be released from further examination after ten years of age. This work to be in charge of a board consisting of the President of the State Horse Breeders' Association, Professor of Animal Husbandry in the College of Agriculture, and the Professor of Veterinary Medicine in the Agricultural College of the State University. Actual examination to be done by committees of two, each committee consisting of a practical horseman and a veterinarian. The horses are to be assembled at specified places in each county for examination. Examination and registration fee \$3. License to be renewed each year without examination, except as mentioned; renewal fee \$2. Stallions are divided into two general classes, pure bred and grade. It is made a misdemeanor to use pedigrees or illustrations on posters or otherwise so as to mislead.

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INFECTIOUS VAGINAL CATARRH IN CATTLE,*

(*VAGINITIS GRANULARIS INFECTIOSA BOVIS.*)

ITS TREATMENT AND HOW TO CONTEND AGAINST IT.

BY DR. H. RAEBIGER,

Director of the Bacteriological Institute of the Department for Agriculture for the Province of Saxony, Halle o/S.

Infectious vaginal catarrh in cattle having spread to such an extent and having reached extreme proportions in all countries, I may be allowed in the following to describe the experiments made in Germany to investigate and combat this plague.

For the fundamental achievements obtained in the discovery of its etiology, the course of the disease and its economic importance, we are indebted to Prof. Dr. Ostertag, Director of the Hygienic Institute of the Berlin Veterinary High School.

According to Ostertag's results, which extend back as far as the year 1898, and have been confirmed by numerous investigators, infectious vaginal catarrh is caused by a streptococcus the existence of which in the purulent vaginal efflux as well as in the sectional preparations will be confirmed by the diseased parts of the vagina. The streptococci predominate extracellular, but will also occasionally be found imbodyed in the cells of the matter. The streptococci in infectious vaginal catarrh are found only in the pathological secretion of the vagina and, should the catarrh encroach on the womb, also in the efflux of the womb, but never in the blood.

The exciter of contagious vaginal catarrh belongs to the type of short streptococci, forming chains of from six to nine links, which are held together by a delicate, uncolorable covering. The streptococcus of contagious vaginal catarrh is immovable, but possesses a considerable power of growth, in virtue whereof it is capable of forcing its way also into the epithelium and papillary bodies of the mucous membrane of the vagina. In the sectional preparation they are to be found between the

* Specially written for the AMERICAN VETERINARY REVIEW.

epithelia as well as in the papillary cells. The fact that the streptococci are able to force their way into the tissue of the mucous membrane, explains the difficulty against which the first attempts at treatment, which were made here some six years ago, have had to contend.

The streptococci of vaginal catarrh can easily be colored with basic aniline dyes, particularly beautiful pictures being obtained by coloring the pus and the sectional preparations with Löffler's methyl-blue; according to Gram the streptococci are discolored.

The exciter of vaginal catarrh can be reared at brooding warmth and room temperature on ordinary isinglass, clotted blood serum, in gelatine or in bouillon. The cocci thrive exceedingly well on glycerine-agar and on urine-agar. On sour culture medium the growth remains weak. In bouillon and in the condense-water of oblique chilled culture medium the microorganism forms short chains of from six to nine links. Blood serum and glycerine are not liquefied, milk is not turned sour, and, what is more, neither SH₂ nor indol are produced, nor is gas formed in a solution of grape sugar.

During several years' work against this pest I have found Ostertag's statements confirmed in all respects and submit the following facts as indisputable proofs that the streptococci discovered by Ostertag are the specific excitors of the disease, viz.:

1. They are always to be found in the diseased secretion.
2. Their artificial cultivations at once produce the typical catarrh.
3. The streptococci are always to be found in artificially infected cows.

The transference of the infectious matter is only successful in the case of cattle, horses, pigs, goats, sheep, dogs and the usual small laboratory animals, such as rats, mice, rabbits and guinea-pigs; pigeons resisted all attempts at infection. Introduction of the artificial cultivations of the accompanying bacteria, *Staphylococcus pyogenes aureus* and *Bacterium coli com-*

munis, which are generally found in the efflux of cattle affected with infectious vaginal catarrh, failed to produce vaginal catarrh in cattle, a fact I would point out in passing.

The natural infection of female cattle may be caused by direct communication with the vaginal efflux of diseased animals through bodily contact, by infected beds and barn-implements, by the infected hands of the farm-attendants, *e.g.*, when milking; by the bull when covering and in the handling of the calves, which are infected not only at birth, but later on by the mother or by diseased stable companions.

The disease is more severe among heifers and young cows than in older animals—among a totally infected herd very old cows are sometimes found to be quite healthy—generally, however, taking the same course so far as changes in the mucous membrane are concerned, the after-effects vary considerably, as we shall see later on. The stage of incubation lasts from two to six days.

If we picture to ourselves the histological structure and appearance of the healthy mucous membrane of the vagina we shall see that it is a firm membrane of elastic connective tissue, fibrous and free from glands, with a feebly developed papillary structure and covered with layers of cellular epithelium; it is of a uniformly white or pink color, yellowish white in old cows, glossy with moisture, smooth, and showing no surface lymphatic nodules or slimy coating apart from quickly passing physiological conditions.

At the commencement of the inflammation, however, a slight swelling of the exterior of the pudenda is noticeable and on inspection an extreme sensitiveness and a swelling of the vaginal mucous membrane. In consequence of the inflammatory irritation of the morbid agent the mucous membrane, especially within the entrance of the vagina, shows an increased supply of blood, a deeper red and is covered with a whitish grey, fibre-shaped coating of slimy pus. One or two days later many compact nodules, from the size of a pinshead to that of a double millet grain, projecting above the level of the mucous

membrane and easily visible at some distance under a slanting ray of light, appear on the mucous membrane, in the red inflammation of which quite a typical, more or less yellowish tint is to be seen at all stages of the catarrh. These nodules, which represent the inflamed lymph-follicles and which, under normal conditions, lie within the mucous membrane, are of a dark red, stand in high relief of the inflamed vicinity, and appear in greatest numbers within the vaginal entrance and on the puffed-out swellings which usually make their appearance near the clitoris. At a later stage of the catarrh the mucous membrane often begins to fall into pleats, on and between which the nodules may often be traced right up to the entrance to the womb. These nodules are often found to be lying in groups, piled one upon another to such an extent that it appears like a raspberry.

The surface of the nodules is neither of a warty nor of an uneven nature, but smooth and of a firm consistency. When the chronic stage of the catarrh sets in these nodules become smaller, change in color to a bright red or yellow, appear transparent and look very much like blisters. A prick with a needle, however, readily proves their solidity.

These nodules are never lacking. That they are characteristic for infectious vaginal catarrh is shown by the fact that even by artificial infection the swelling of the lymph-follicles is always plainly visible and typical in form, whereas in the case of other vaginal inflammations this is never noticeable. On the other hand, small blisters and sores do not appear.

With the swelling of the lymph-follicles the secretion of the vaginal mucous membrane increases and if the exciter of the catarrh is propagated on the mucous membrane of the womb, which is not always the case, a glassy, albumen-like, sometimes creamy efflux results, mixed with more or less whitish matter flakes of milk-curd appearance. Contrary to other effluxes (*Fluor albus*) this is odorless in every stage of the disease. This efflux dries in the hair of the hind legs, forming a dirty grey crust and shows an alkaline or neutral reaction.

The efflux is rarely considerable, generally only very slight, but may be more plainly observed when the animal is led round or lying down and is increased on the commencement of the treatment. In most cases the efflux is so slight that it passes almost entirely unnoticed.

On account of the irritation caused by the inflammation, the animals render themselves suspicious in the first days of the disease, becoming restless and passing urine oftener than usual, occasionally remaining for some time in position with legs spread, squeezing the urethra.

After about four weeks, the swelling of the pudenda and of the vaginal mucous membrane recedes. The latter loses its inflamed redness and acquires a yellowish or faded red color; the nodules, however, fade only very slowly and gradually acquire, as already mentioned, the appearance of small blisters, which may be compared with herring spawn. Little by little the vaginal mucous membrane loses its slimy coating, but the efflux continues a long time, so far as a catarrh of the womb is concerned.

As regards the duration of the disease, attention must be drawn to the fact that it may last not only three to four months, as is often supposed, but that the plague can prevail among herds of cattle six months and even longer. I have even known cases where it lasted several years.

From the appearances just described, infectious vaginal catarrh can easily be recognized during any stage of the disease by an inspection of the sexual organs of the cow, by the yellowish red, more or less inflamed swelling of the mucous membrane, the prominent and hard nodules over its surface, the swollen lymph-follicles and the odorless albumen-like vaginal efflux, mixed with whitish matterly flakes, or by the coating of the mucous membrane.

The examination of female animals can be readily carried out in the following manner, viz.:—One man holding the animal for examination by the nostrils, another drawing its tail aside; or in the case of particularly restless cows or heifers,

three experienced assistants should be stationed at the head and haunches, one of them holding the tail aside, while the examiner taking hold, with forefinger and thumb of each hand, one-half of the lower lip of the sexual organ from the outside, and drawing them apart, submits the mucous membrane of the vagina for his inspection. In this way fifty to seventy-five animals can be inspected per hour, according to the position of the farms and the extent of the herds.

Only in the case of very gloomy cow-houses, will it be necessary to lead the animals into the yard, or to make use of an electrically illuminated vaginal speculum, such as has been constructed a short time ago by Plate.

Bulls, after having covered diseased cows or heifers, seldom show visible signs of the disease, although it has been proved that they are contaminated and have communicated the disease to healthy animals. Of the bulls examined, only about twenty to thirty per cent. showed a slight swelling of the fore part of the utricle up to the utricle aperture which is surrounded with long hairs. In these cases, by pressing the utricle gently with the hand and drawing the latter along to the fore end, drops of a greyish-white, almost odorless secretion could easily be extracted. In one case there appeared at the same time a slight inflammatory reddening of the penis, but only in very few cases, in which the penis was more severely inflamed and the scrotum swollen, the secretion flowed of its own accord, in drops large enough to be easily perceptible.

Several examinations of such secretion were made, all of which proved the existence of the streptococci of vaginal catarrh, which, under certain conditions, are capable of producing preputial catarrh in bulls.

The utricle of the bull may readily be examined in the cow-house, restless and vicious animals while they are being fed by the attendant.

The examination of the penis, however, may be most quickly effected by separating the bull and placing him behind a cow, causing him to unsheathe.

Apart from a passing restlessness of the cows, the general health of infected animals is not affected. Even by extreme inflammation of the mucous membrane, neither male nor female animals suffered from increase of bodily heat and no loss of appetite was noticeable. *The disease is in so far of great economic importance, as cattle owners may thereby be subjected to the heaviest losses.* On account of its abnormal contagious propensity it spreads rapidly everywhere. This is proved by the fact that in most infected areas, where all the cattle on large numbers of farms were examined, generally from 90-98 per cent. were found to be diseased. Only in a few districts the proportion was from 50-60 per cent.

The attendant diseases which ensue, as well as the disadvantages to agriculturists, principally affect the female animals. They appear in the form of lack of ardour, incapability of conception (10-75, sometimes 100 per cent. respectively), too late conception and sterility. Other effects are miscarriage at all stages of pregnancy (10-70 per cent.), a late development of the secundine, death of the foetus, uterine catarrh (*Endometritis catarrhalis et urulenta*), diseased ovary, and finally a decreased production of milk. In isolated cases even a decrease in the quality of the milk was discovered.

To the above may be added that the calves of animals which are or have been affected are not so strongly developed, and are more easily susceptible to disease than the progeny of healthy cows. Infection and sickening of breeding cattle results in a rapid and considerable spreading of the disease through covering. Furthermore, infected breeding cattle do not produce nearly so many calves as healthy bulls. Sometimes lack of copulative desire occurs, and, more seldom, loss of physical power.

The damage due to this plague is often considerably greater than that caused by foot-and-mouth disease.

So far as differential symptoms are concerned, only a breaking out of the little blisters comes into consideration. Contrary to infectious vaginal catarrh, it is an acutely passing and mild

disease, in which no nodules, but blisters varying in size from a millet seed to a pea, appear on the mucous membrane. They are filled with pus, soon burst and pass off as sores which quickly heal up and seldom leave a white scar behind. When the blisters burst, a comparatively strong, slimy efflux is given out, followed by an efflux rich in matter. Besides this, the bulls contract the disease to a remarkable degree in utricle and penis, on the mucous membrane of which little blisters and sores appear, a slimy matterly efflux dropping from the utricle at the same time.

Furthermore differs the blister eruption from infectious vaginal catarrh in so much as the general health of cattle suffering from the former is affected. The diseased animals recover in eight to fourteen days, at latest after three or four weeks, without any treatment. Finally, may be added, that contrary as in the case of vaginal catarrh, blister eruption occurs also in horses, goats, sheep and pigs. The exciter of blister eruption is unknown.

I began researches in the treatment of infectious vaginal catarrh in the winter of 1900 and continued them almost without a break until the year 1906. Throughout these experiments the leading idea was to discover a method by means of which not only a cure could be effected, but one which could be conscientiously applied by non-practitioners at any time. For in these cases the expert would only be able to introduce and control the treatment, his time, as a rule, not allowing him to continue personal treatment.

The inquiries which I made towards finding a suitable therapeutic, first took the form of laboratory work and was extended to the examination of the antiseptics known to the practice, as to their effect on the streptococci of infectious vaginal catarrh.

For testing and re-testing of numerous preparations only newly-bred, virulent artificial cultivations were used. The result of the examination is drawn up in the following table:

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Name of Preparation.	Solution in Water.	Kills the Streptococci in Minutes.	Price per Kilogram in Large Quantities.
	2½ per cent.	I	Mark 1.80
Kreolin	2½ "	I	" 2.25
Lysol	2½ "	I	" 0.70
Bacillol	1½ "	I	" 2.75
Lysoform	2½ "	I	" 2.50
Septoform	2½ "	I	" 6.—
Lactic Acid . . .	2 "	I	
Chemically pure Liquid Carbolic Acid . . .	2½ "	10	" 1.80
Nitrate of Silver	½ "	I	" 82.—
Ichthyol-Silver	10/00 "	2	" 200.—
Chemically pure Tannin	I "	{ Ineffective after 20 hours' influence. }	" 4.80

When the criticism of these medicines is made to depend on the facts that :

1. They are readily soluble in water.
2. They are good destroyers of streptococci.
3. They display a penetrating efficacy.
4. They are relatively non-poisonous.
5. They have no inflammatory effect on the mucous membrane, and finally
6. They are cheap,

tannin must immediately be discarded as ineffective.

In the same way, according to Ostertag's experiments, the combined remedies of mineral origin (zinc-sulphate, copper-sulphate, sulphate of iron) used in the usual 2½ per cent. concentration, not having succeeded in destroying the exciter of vaginal catarrh after one hour's influence.

Astringent remedies are therefore not to be recommended for the treatment of this disease ; at best they only mature an apparent result. Ichthyol silver fulfils all the conditions splendidly, except that the price is much too high for veterinary practice, and, above all, for use in large quantities, so that up to now this antiseptic has been used only in a few instances.

The price of lunar caustic (argentum nitricum) and of lactic acid must also be taken into account. The killing effect of solutions of carbolic acid takes place far too slowly. Therefore only the creosote products are left. Of these Bacillol is prominent as being most efficacious and cheapest.

According to the results obtained during many years of experience, Bacillol undoubtedly fulfils most nearly to perfection all the requirements necessary for a preparation to be used in vaginitis therapeutics. It is soluble in water under any conditions and forms constant solutions. Bacillol in $1\frac{1}{2}$ per cent. solution kills the streptococci of infectious vaginal catarrh with certainty in one minute. From the numerous cures effected in practice I have become sufficiently convinced of the penetrating effect of Bacillol on the living tissue of the mucous membrane. From a toxicological point of view, according to the examinations made by the Bacteriological Institute in Budapest, the preparation proved relatively less toxic than all the creosote products which have hitherto been known, as rabbits expired only after 2.2 to 2.4 gr. to each kilogram of their body-weight, whereas even smaller doses of carbolic acid and of Lysol sufficed to kill.

Even 2 per cent. solutions of Bacillol produce no irritation of the mucous membrane, and, like Lysol, concentrated Bacillol cauterizes only slightly if placed on the skin.

Apart from this, however, Bacillol has the great economical advantage of being cheapest of all similar medical substances.

The foregoing results having been obtained, the first practical experiments in the treatment of infectious vaginal catarrh were made, by rinsing the diseased sexual organs with an anti-septic. The rinsings, however, even when carried out with warm solutions, proved to be insufficient, and in consideration of the fact that the infectious matter forces its way from without into the vagina, within the entrance to which it produces the worst form of the disease, they were assisted by being followed by a padding of the vagina. A proper sized pad of cotton-wool or muslin ribbon, soaked with disinfecting solution, was pushed into the vagina immediately after irrigation. This method was effective, but had one great disadvantage: it had to be repeated daily, and as it had a certain irritative effect, was not suitable for cows in a state of pregnancy.

In consideration thereof, I tried, together with my former

colleague, Mr. P. Reimers, to substitute a powder treatment for the pad, such as has since been more fully described by Messrs. Streit Bros. We made use of alum-salicylic acid powder and Messrs. Streit Bros. of zinc-sulphate-boric acid powder in the proportions of 4 : 1. The treatment consisted in blowing the powder, which had been kept perfectly dry, on to the diseased vaginal mucous membrane by means of a rubber ball fitted with a tube about 15 centimetres long, the dose being 1 teaspoonful per animal, for young cattle, and slightly diseased animals less.

The powder only required to be applied at intervals of six to ten days, but this method was met by the same difficulty as in padding—it could not be used on pregnant cows, as it endangered the abortus.

In order to be able to treat pregnant cows at the same time as the rest of the herd, we tried for the first time the experiment of applying an ointment to the vaginal mucous membrane, after having removed the slimy coating and secretion from the vagina by rinsing with a warm antiseptic solution.

During the last year the fitness and efficacy of the ointment treatment has repeatedly been confirmed by Ritzer and others. The advantages of this method are that the ointments have a loosening and penetrating effect on the tissues of the mucous membrane, and that, as the ointments are not irritative, they may be applied to both pregnant and non-pregnant animals.

At first the ointments were introduced into the vagina with the fingers, later by means of differently constructed instruments (wooden spatulas, ball conductors, syringes) and in different forms, such as gelatine capsules, pessaries and small pencil-shaped bougies.

According to my experience of all the various methods, extending over an experimental material of more than 35,000 head of cattle, treated under the most varied circumstances, it is shown that of all methods: the capsule method, the use of pencils of ointment and the application of ointment by means of a syringe are the best.

To facilitate the carrying out of the last-named method I

have constructed an ointment syringe which consists of a supply cylinder with introduction tube and of an adjustment or compression ball with an introduction pump, fitted with piston and handle.

The supply cylinder holds 100 grams of ointment and the introduction tube 10 grams. This arrangement allows of 10 large or 20 small animals being treated with each filling of the cylinder, a 10-gram dose sufficing for adult female cattle and about 5 grams for younger ones. The syringe may be filled with ointment of any consistency, ensures a reliable dosing and facilitates rapid treatment of cattle of all ages. The instrument maker, Hauptner, Luisenstr. 53, Berlin, has been entrusted with the manufacture of these ointment syringes.

Communication of the infectious material by the syringe may be easily prevented by dividing the herd into healthy and unhealthy groups before treatment. The syringe may also be boiled off and disinfected. In my researches, carried out on behalf of the Department for Agriculture of the province of Saxony, I have, for reasons already mentioned, mainly used Bacillol ointment, which is well founded and prepared by the Bacillol Works in Hamburg. For female animals 10 per cent. ointment was used, and for males, owing to their greater susceptibility, 6 per cent. ointment.

Two or three injections of the ointment should be administered to the patients weekly, according to the stage of the disease.

As a matter of principle, the smaller percentage of clinically healthy animals were always treated along with the others.

A simple method of introducing the ointment without any instrument is the capsule procedure.

For the so-called capsule method we are indebted to Mr. Ritzer, Circuit Veterinary Surgeon of Lichtenfels, at whose suggestion the Bacillol Works in Hamburg have prepared 6-10 per cent. Bacillol ointment in gelatine capsules so as to enable the ointment to be introduced into the vagina quicker, more easily and without waste. The capsules dissolve in the

vagina in about half a minute, setting the ointment free to act on the vaginal mucous membrane. The capsules are introduced as far as possible with the finger. Ritzer prescribes for each animal one capsule daily during the first five days, from the sixth to the fifteenth day one every other day, and from the sixteenth to the thirtieth day one every third day. In severe cases the treatment must be continued, one capsule every third day, until a cure has been effected. The capsules vary in size in accordance with the age of the animals.

In order to render the capsule treatment less expensive, Bacillol ointment is prepared in solid and in pencil form. These ointment pencils are 15 centimetres long and bear a centimetre scale on the inner side of the cover, so that they may be cut into longer or shorter pieces as required. The end thus cut off is inserted as far as possible, with the help of a stick, in order to obtain an intense effect near the mouth of the womb and to prevent the ointment from being forced out. As a rule, fifteen ointment pencils per animal are sufficient for a 30 days' treatment.

As Ritzer's pencil method does away with the capsules it is cheaper, whereas the capsule method, on the other hand, simplifies the treatment considerably.

Conception in heated animals may be efficaciously assisted by rinsing the vagina with a 2 per cent. solution of bicarbonate of soda before the covering takes place.

All bulls which have covered animals suffering from infectious vaginal catarrh, or which come from a district supposed to be infected, whether they show symptoms of the disease or not, must be placed under treatment before being allowed to mount healthy cows.

The bushy hair having been removed from the utricle with a pair of scissors, either capsules or pencils of ointment are inserted with the help of the forefinger, or the ointment is injected. Finally the utricle of the bull may be rinsed once or twice daily with a warm 1 per cent solution of Bacillol.

There are, as will be observed, many different methods of

treatment at our disposal, all approved in practice, which may be employed according to circumstances.

Before treatment of a herd is commenced it is advisable to carefully inspect the individual animals and to divide them into healthy and unhealthy groups, immediately excluding those few (according to my experience from 1 to 2 per cent.) suffering from a diseased womb, which may be designated incurable. Animals suffering from catarrh of the womb, form a constant source of infection for the remainder of the herd.

As it would seldom be possible to accommodate the animals in separate stalls, they must at least be separated so far as to prevent bodily contact between the two groups, or contamination with the dung drainage. The healthy animals, for instance, should be so placed that the drainage discharged into the gutter by the unhealthy should not flow towards them.

Prior to any treatment, the cow-houses must be thoroughly cleaned with water, especially the discharge-gutters; afterwards the floors and walls, so far as the animals come in contact with them, whitewashed, to about the height of a man, with milk of lime to which it would be better to add a little Bacillol, or be washed with a 2 per cent. solution of Bacillol. The cleansing and disinfecting of stalls and gutters must be repeated at weekly intervals until after the close of the treatment.

Milk of lime, which can only be used quite fresh, as it extracts CO_2 from the air, producing calcium carbonate, etc., is prepared by dissolving lime in water. The proper consistency for whitewashing is obtained by mixing one part of lime with two of water, and thin milk of lime for washing the floors and discharge-gutters, by mixing one part of lime with twenty parts of water. The lime-wash may be improved by an addition of 5 per cent. rocksalt to the boiling lime. In this way the lime-wash takes a firmer hold of the walls and does not easily rub off, as is generally the case.

I have found painting machines a useful aid when disinfecting the cow-house, and very well adapted for washing the animals with disinfectants.

In the case of both healthy and diseased cattle, when accommodated in the same cow-house, during the whole period of their treatment, strict cleanliness of the sexual organs and their surroundings, as well as of the tails down to the tuft, and of all parts coming in contact with the tail, must be maintained. The antiseptic washings are best carried out with a $1\frac{1}{2}$ to 2 per cent. disinfectant fluid (Bacillol).

During the treatment, male and female animals are to be kept from copulation. After treatment, the bulls are only to be kept away from those heifers and cows which are known or supposed to be diseased. The bull-keeper, who must be acquainted with the symptoms of the disease, must be instructed to carefully examine each female animal for vaginal catarrh before it is covered. Under no circumstances must he allow a diseased animal to be covered before it has been completely cured. But also after the covering of healthy cows from an infected area—as a precaution—a disinfection of the utricle by introduction of Bacillol ointment and antiseptic washing of the surrounding parts must follow the leap at once.

The symptoms by means of which we may notice that healing has set in are as follows :—The female animals are to be considered as healed when the efflux and the slimy vaginal coating disappear, the inflamed condition of the mucous membrane dies away and the nodules (swollen lymph-follicles) become smaller and paler or, as is usually the case after the healing of fresh cases, disappear altogether. The healing, however, as Thoms has also shown, is not necessarily combined with the total disappearance of the nodules.

That the infectious matter is nevertheless killed off may, apart from the bacteriological examination of the samples to be taken from the respective mucous membranes, be at once recognized in the practice, as the animals treated no longer abort, and conceive under normal conditions, no efflux occurring during the course of pregnancy. Delusion may occur in the determination of the cure in such cases in which too strong a solution of the medical appliance caused an inflammation in the re-

gion of the mucous membrane. In doubtful cases an interruption of the treatment is advisable. Should a decrease in the inflammation be observed during the repeated inspections, the same may safely be attributed to the action of the medicine, otherwise the symptoms of the disease would continue or become more marked.

Should visible symptoms of disease have existed among the bulls before the commencement of the treatment, a cure has been effected when the inflammation of the penis and the fore-skin catarrh have disappeared; but should there have been no visible symptoms of disease, it may eventually be proved in a practical manner that a cure has been effected, by letting the bull in question make a trial leap on a cow which is known to be healthy. If the former be still infected with the contagious matter, the cow will, within a very few days, be certain to show typical inflammation of the mucous membrane, together with the characteristic efflux. Such an experiment is not usually required, as experience has taught us that bulls may be considered cured after a four weeks' careful treatment.

As soon as the cure has been attested for all animals of a herd, it is necessary once more to cleanse and disinfect the cow-house and implements. The shoes of the cow-house employés must also be disinfected. It is better to burn all materials of no particular value, such as dusters, sweeping brush, etc.

The prognosis depends upon the degree and duration of the disease as well as on the character of the plague and the period at which treatment was begun. It is further determined by the arrangement of the cow-houses and the extent of the herds (more favorable in smaller ones), by the possibility of disinfection, and last, not least, by the coöperation of the owner. It has, therefore, been pointed out from different sources, that to ensure the success of any method of treatment, it is necessary to enlighten and instruct the cattle owner.

Since infectious vaginal catarrh does not generally grant immunity from further attacks, it will become necessary, besides the disinfection, to destroy the infectious matter which has

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been emitted and to prevent a protraction of the plague after a cure has been effected, by preventive measures calculated to avoid new infection.

In order to obtain a permanent result, it is therefore advisable

1. To examine very carefully each newly introduced cow for infectious vaginal catarrh and to reject unhealthy animals.

2. To let each bull from a suspected infected area undergo a course of treatment before being allowed to cover.

3. To protect healthy bulls against contagion by rinsing their utricles with one liter (about one quart) of a warm 1 to 1½ per cent. solution of Bacillol or by introducing a 6 per cent. Bacillol ointment each time it has covered, even with an apparently healthy cow.

4. To place endangered herds under continuous health control.

5. To instruct the bull-keeper to carefully examine each cow before it is covered, and to firmly withhold the breeding-bulls from all diseased or suspicious cows and heifers.

Owing to the character of the disease, already some years ago the advisability of placing infectious vaginal catarrh in cattle on the list of plagues to be publicly notified and subjected to veterinary police measures, was matter of inquiry. In March, 1901, the Department for Agriculture at this place, received the opinion of the Royal Prussian Technical Deputation for Veterinary Matters, in which the latter expressed its opinion concerning eventual legal measures being taken.

The Technical Deputation for Veterinary Matters considered it imperious that the disease known as infectious vaginal catarrh and womb catarrh be restrained and contended against by legal measures. To make the application of veterinary police measures possible, an introduction of §§ 9 and 10 of the German Imperial Law against Plagues among cattle will be required. The owners of animals could easily satisfy these requirements, as the disease in its acute stage shows plain symptoms which cannot but rouse suspicion of an outbreak of the plague, if the sexual organs of several animals within a short space of time are af-

fected in the same manner. The owners of animals might also be informed of the symptoms, course and importance of the disease by means of popularly written pamphlets. Finally, the Technical Deputation proposed some additional provisions to those measures already applicable against vesicle eruption, being guided by the principle that these measures taken to suppress the disease should agreeable to its nature be somewhat milder and simpler. This deputation further suggested exclusion of diseased animals from copulation until a perfect cure and unsuspicious condition of such animals has been declared (or certified) by the official veterinary surgeon.

From another source it was proposed that there should be a periodical inspection, to be carried out by a veterinary surgeon, and furthermore exclusion of infected animals from breeding, for about 8 weeks for bulls and 10 weeks for female cattle, as well as separation and dislocation; closing of the cow-house, permission to transport these animals only for killing purposes; a slaughtering of the less valuable infected breeding animals; compulsory treatment; final disinfection of the litter, the dung-drainage, the cow-house implements, dusters, and the animals themselves; inspection by the bull-keeper of the cattle to be covered, and a control kept.

As yet, however, veterinary police measures against vaginal catarrh have been introduced only in the Grand-Duchy of Baden, and in the Duchy of Sachsen-Altenburg. Baden has very quickly withdrawn the conditions, partly because the owners of animals found them too harsh, and partly because the neighboring states did not follow its example. Nor did the legal measures prove satisfactory in Sachsen-Altenburg. It may be seen, without more difficulty, that such arrangements can be successful only when introduced by all neighboring states at the same time and under the same points of view.

According to my opinion, there is no doubt whatever that, in those countries in which the plague has not yet spread to too great an extent, suitable veterinary by-laws would materially assist the treatment and the combat. The symptoms and course

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of the disease, with all its consequences, ought to be explained by means of public notices to the farmers, who should be compelled to report all cases.

The most important measure would be the directions for the treatment of diseased herds by a veterinary surgeon. That during the treatment of diseased animals they be not allowed to copulate. Should it be impossible to carry out this rule in severely infected areas, at least the healthy and healed bulls must be most strictly kept apart from all diseased or suspected female animals. The pasturing should be regulated and the withdrawal of diseased animals for breeding purposes prohibited. Finally, after a cure has been effected, a thorough cleaning and disinfection of the cow-houses should complete the extermination of the plague.

I am of the opinion that, in order to prevent great economical disadvantages, further measures should be desisted from with regard to the chronic progress of the plague.

My statements may be summarized as follows:

1. The etiology and nature of infectious vaginal catarrh have been clearly demonstrated.

2. The plague is curable.

3. All the individuals of a plague-stricken herd must be treated simultaneously.

4. The treatment would be materially assisted by the enlightenment of the owners and by suitable veterinary police measures.

5. After a cure has been effected, suitable precautionary measures must be observed, since getting over one illness fails to secure immunity for the future.

LITERATURE RELATING TO THE SUBJECT.

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2. ELLENBERGER AND GÜNTHER. "Sketch of the Comparative Histology of Domestic Animals." 2d Ed. 1901.

3. ZSCHOKKE. "Barrenness in Cattle." Zürich, 1900.

4. MARTENS. "Contagious Vaginal and Womb Catarrh in Cattle." *Berlin Veterinary Weekly*, 1898, No. 13.

5. RAEBIGER, H. "Contagious Vaginal Catarrh in Cattle." Lecture delivered before the 73d meeting of German Natural Philosophers and Physicians. *Berlin Veterinary Weekly*, 1902, No. 2.

6. ELLINGER. "On the Casuistry of Transferrable Malignant Vaginal Inflammations in Cattle," with special consideration of the action of Necrosis Bacilli. . . . simultaneously a contribution to the Doctrine of Puerperal Refection. *Berlin Veterinary Weekly*, 1903, No. 2.

7. RITZER. "On Combatting Infectious Vaginal Catarrh by Means of Bacillol." *Weekly Journal for Veterinary Surgeons and Cattle Breeders*; 48th year. Nos. 7, 8, and 9.

8. HESS. "Report on the Investigation of Nodule Fever" instigated by the Society of Swiss Veterinary Surgeons. Agricultural Yearbook of Switzerland; 19th year. Bern, 1905.

9. THOMS. "Contagious Vaginal Catarrh in Cattle," with special consideration of the Pathological-Histological Changes of the Vaginal Mucous Membrane. *Monthly Journal of Practical Veterinary Science*. Vol. 17, 1905.

THE second year of re-registration of practitioners with the Board of Examiners of Pennsylvania shows but few who have failed to qualify, and, at the recent meeting of the State Association, confidence was expressed in the satisfactory operation of the law.

THE subject of milk hygiene is sizzling in New York. Advocates of pasteurization among the dailies are numerous. A diet of cooked germs may be better than live ones, but that is not the rational way to purify milk. Prevent the organisms from gaining access to it.

PENNSYLVANIA RAISES THE REQUIREMENTS FOR ADMISSION TO MEDICAL SCHOOL.—Recognizing the advantage of a broader general education and the growing necessity of the prospective student having in addition special preparation for the study of medicine, the Board of Trustees of the University of Pennsylvania has decided recently to raise the requirements for admission to its medical school. These requirements include two years of general college training and in addition a certain knowledge of biology, chemistry and physics. According to the plan which has been adopted, the standard will be raised gradually, beginning with the academic year 1908-1909 and reaching the maximum 1910-1911.

VON BEHRING'S DEFENCE OF BOVOVACCINE.

EXCERPTS OF VON BEHRING'S PUBLICATIONS, "BOVOVACCINATION IN PRACTICE," TAKEN FROM A SEPARATE PRINT OF A CYCLUS OF LECTURES, PUBLISHED IN THE SECOND BOOKLET OF "COMMUNICATIONS OF THE BEHRING'S WORKS."

TRANSLATED BY DR. WILFRED LELLMANN, PROFESSOR AT NEW YORK UNIVERSITY.

As an introduction to von Behring's publications, I wish to make the following statements:—I think it would not be fair, if a reply from von Behring on attacks upon his method of bovovaccination should be retained from our colleagues, who perhaps read only the AMERICAN VETERINARY REVIEW. A discussion must not be one-sided. One cannot help gaining the impression that, ever since von Behring introduced bovovaccination into practice, quite a number of professional men claim not only the glory of having improved this method greatly, but also pretend that they were ahead of von Behring as far as in originating his so-called Jennerisation method. However, the impartial observer cannot help admitting that many publications against von Behring's bovovaccination arise from personal animosity against the inventor or perhaps from personal feeling for themselves, *i. e.*, the wish of glorifying themselves.

Personal feeling of any kind should be entirely excluded when judging a method as for its efficacy and usefulness.

I wish to state that I have been experimenting with Bovo-vaccine for two years and a half, and that my experiments on quite a number of animals of the bovine species under my personal observation have proved to me beyond any doubt, that in bovovaccination we certainly have an immunizing method against tuberculosis. It must be evident to every logically thinking man that immunity of equal degree cannot be produced in all vaccinated animals and that absolute immunity does not exist, and furthermore that a certain number of failures are liable to occur in practice, due to improper handling of the vaccine and lack of judgment.

I do not mean to say that the present method of bovovaccination could not be improved upon. I am sure it can, and I know it will be simplified in the near future as to its way of being used, and most likely with still a better prospect as to the immunizing quality of the vaccine.

There could be added many more statistical figures to those already published; however, this would not materially change the general impression. Therefore, I shall confine myself to the statistics, which refer only to artificial infection of tuberculosis in vaccinated and non-vaccinated animals.

* * *

I am indebted to Vallée, the director of the renowned veterinary school at Alfort, for these experimental bovovaccination statistics. Following, I shall cite as literally as possible Vallée's report on a test made with 40 bovines and published by him in various journals. The passages which are here of interest read as follows in the German translation:

"On July 13, 1904, the Société de Médecine Vétérinaire Pratique readily accepted a proposition of the General Secretary, Mr. Rossignol, of Melun, to carry on an experiment with numerous animals, according to an accurately worked out test-plan, which would give us the means of obtaining a clear opinion as to the value of Behring's bovovaccination.

The experiment was commenced in September, 1904, and included the examination of the *innocuousness* of the method, its *efficiency*, and, should these be proven, the *duration* of the produced immunity.

* * *

Behring's Bovovaccine is marketed in small tubes; it is a yellowish powder consisting of dry bacilli of the human type, which are still capable of infecting guinea-pigs. (1) The operator has to prepare the vaccine by emulsifying it thoroughly in sterilized water.

In Melun, we have vaccinated only animals which proved to be healthy after having submitted to a proper tuberculin-test. These animals were carefully protected during the experimental

period from any possible spontaneous infection, and stabled in a disinfected place where thus far no cattle had been kept.

(1) However, the vaccines injected at Melun were, according to a test in which several accurately weighed off doses (three weeks prior to the expiration of their stated applicability) were found to be incapable of infecting guinea-pigs.

A year after the first vaccination and 9 months after the second, 15 of the vaccinated animals were dissected, 13 of them having previously been tested, and 2 without this test.

In none of these animals have we found even the slightest trace of a tuberculous change attributable to the preventive vaccination.

In April, 1905, a tuberculin test proved 4 bovovaccinated animals, kept at my Alfort laboratory, free from infection. Even more, the bronchial and mediastinal glands did not contain any bacilli, which was proven by test-inoculation into guinea-pigs. These glands would have been virulent, if the vaccines injected intravenously several months previous had been injurious.

On the basis of all these proofs, Rossignol and I have concluded that: "bovovaccination is harmless for animals which, during the time required for the completion of the immunity, are protected from all accidental infection."

Since the conclusions of the experiments at Melun, I have been able to ascertain, that Bovovaccine does not always possess the same degree of virulence for guinea-pigs. Consequently we must assume, that the results will not be invariably the same in cattle; it is therefore understood that, although the bacillus is of the human type, different results as to the harmlessness of the vaccine for guinea-pigs can be obtained by different experimentors.

In order to determine the resistance of the bovovaccinated cattle against tuberculosis infection, the animals were subjected,

in various ways, to a control infection, three months after vaccination.

Two bovovaccinated and two new control animals were placed with cattle suffering from open tuberculosis. Six bovovaccinated and six control animals were infected by intravenous inoculation of 4 milligrams each of a highly virulent bovine bacillus. Seven other bovovaccinated, together with seven control animals, were vaccinated subcutaneously with bovine tubercular matter. The result of these test-series, 170 days after the control infection, was:

A. *Test-series of Subcutaneous Control Infection.*

- (1) Extensive lesions of the prescapular lymphatic gland in the 7 control animals and in one vaccinated animal.
- (2) Dissemination of the infection over the lungs in 5 controls, while the inner organs of all bovovaccinated animals are free from tuberculosis.

B. *Test-series of Intravenous Control Infection.*

- (1) Death of 3 of the 6 controls, 29, 34 and 37 days respectively after the test, from very extensive miliary tuberculosis.
- (2) Upon killing the 3 remaining, highly diseased, control animals, they show generalized tuberculosis.
- (3) The bovovaccinated animals at the time of slaughtering were found perfectly healthy clinically and did not even show rises in the temperature during the months following control infection. In two of them, there were found only 2-4 minute tubercles in the bronchial glands; in all of them, the lung tissues were found to be perfectly free from tuberculosis.

C. *Test-series of Natural Infection Conditions.*

- (1) In the bovovaccinated animals which were not killed, a very slight reaction to tuberculin.
- (2) In the control animals, pronounced tuberculin reaction, and upon dissection severe tuberculous changes of the intestinal organs and of the lungs.

* * *

The report proves under all circumstances, that in bovovaccination itself we have a method of checking tuberculosis.

This method which proved itself efficient upon scientific experimental basis, was introduced into practice about five years ago.

But I have already intimated, that even in the event of an unfavorable result of Vallée's experiments, nothing contrary would have been proved against my Jennerization method in the opinion of scientific investigators.

In connection with my explanations regarding the virulence determination of different types, I have demonstrated to you, what enormous multipla of the deadly minimal dose may be contained in fractions of a milligram of my Taurin culture.

Supposing I claimed having detected a method of immunizing guinea-pigs against 100 times the amount of the fatal minimal dose of my Taurin, would my claim be questioned seriously, if, nevertheless, some one should succeed in causing a fatal infection in one of my immunized guinea-pigs by using thousand or hundred thousand times the amount of the fatal minimal dose of my Taurin?

There are people to whom the question of the relative degree of immunity is still a puzzle. Judging the question, whether an immunizing method is of practical value, our opinion ought not to be governed by the idea that we may yet succeed in infecting an animal artificially by the virus against which it was immunized. It certainly means a great progress, if we succeed in protecting the majority of the vaccinated animals against the dangers of infection to which they are continuously exposed.

The idea that a method of preventive vaccination must confer absolute immunity in order to be of practical use might have been pardonable twenty years ago, before it had been proven, through the serum-therapeutical researches, that we must stop to consider the terms "immune" and "susceptible," absolutely disharmonizing contrasts. There is no absolute immunity, neither does there exist an absolute susceptibility. There are only graduated differences in the degree of reaction upon the introduction of infectious material; and if we bear in mind practical immunization, then our opinion regarding the

utility of a preventive method must not depend upon the theoretical demands of academicians, but we must content ourselves with what is attainable at the present time.

To-day, it must be considered as a sign of scientific retrogression if, for instance, Moussu in the *Semaine Medicale* bases his unfavorable criticism of bovovaccination upon the indisputable statement that through a sufficiently severe experimental infection bovovaccinated animals will succumb to tuberculosis, and that in agricultural practice at times localized tuberculosis can be found in the animals bovovaccinated according to my method.

With his criticism, Moussu commits the same error which was made about 23 years ago by Koch and his then disciples, Loeffler and Gaffky, when, in the State Bureau of Health, they tested experimentally Pasteur's immunizing method for the prevention of anthrax.

I am far from assuming that Moussu's criticism of my method will create as strong an impression upon tuberculosis investigators as that caused for some time, 23 years ago, at least in Germany, through Koch's authority, to the discredit of Pasteur's preventive vaccinations. This I fear all the less, since Moussu does not base his criticism upon his own experimental work, as did Koch, but has obtained his arguments from the reports of other authors, a number of whom, it is true, are somewhat better versed in the subject than he is himself, but who, to my knowledge, are not quite up to date in matters concerning researches on tuberculosis.

However, recurring logical errors of theoretical critics, which Moussu's criticism of my bovovaccination has in common with Koch's, Loeffler's and Gaffky's criticism of Pasteur's vaccination against anthrax, make the recollection of the Pasteur-Koch episode appear to me very useful and instructive just at the present time.

* * *

About three years after the introduction of Pasteur's vaccination against anthrax of sheep, Koch made the assertion that

the so-called successful results of Pasteur's method could not stand the test of exact science. It could and must indeed be admitted, that with a certain manner of testing the immunity, that is, if a small amount of the virus were injected under the skin, according to Pasteur's directions, the vaccinated animals would remain alive, while not vaccinated control animals would die of anthrax; but that this proved nothing as to the usefulness of the vaccination in agricultural practice; for in naturally infected sheep, infection does not occur through the skin, but the digestive apparatus, by anthrax spores swallowed with the food. If this infection method be imitated experimentally in such a manner as to feed anthrax spores in doses which would prove fatal in every control sheep, then the vaccinated sheep would die as well. Therefore, the conclusion was to be drawn, that the statistics pretending to prove the practical value of Pasteur's method of preventing anthrax must be fallacious.

"Since (it is stated in Vol. II of the Communications from the State Bureau of Health) a positive immunity against anthrax cannot be obtained without material losses through the preventive vaccination according to Pasteur's method, and since this immunity proved by losses is but an imperfect protection against natural anthrax infection, the advantage of the thus far practiced method of preventive vaccination is to be considered as very doubtful."

Already prior to this time (1882) Koch had published the following statement with reference to preventive vaccinations according to Pasteur's method:

"The experiences made so far should prove an earnest warning not to be too hasty in applying scientific deductions to practice. Pasteur's hopes in connection with the preventive vaccination against fowl cholera have apparently not materialized, for nothing is known of vaccinations made with mitigated microbes of fowl cholera. The preventive vaccination against anthrax has not been found of practical value either, at least not for the present, and the preventive vaccination with mitigated pathogenic bacteria has so far not proven successful. If,

at the Genf Congress (1882), Pasteur has been celebrated as a second Jenner, this has been done somewhat too early, and in the burst of enthusiasm it has evidently been overlooked, that Jenner's glorious discovery has not benefited sheep, but mankind."

* * *

As far as I know, Pasteur's response to the continuously hostile attitude of Koch toward the former's preventive vaccinations, was the remark that such unfavorable criticisms tended to reassure him as to the harmlessness of the competition of Koch's school in the realm of vaccination therapy.

I too believe that I need not fear serious competition from French scientists concerning my tubculo-therapeutic work, as long as critics of Moussu's type are allotted a conspicuous place in reputable medical journals for their retrogressive comments.

I do not know whether Moussu is convinced of the practical usefulness of Jenner's small-pox vaccination. If he is, would he cease to consider the introduction of the cow-pox vaccination a useful and enlightening achievement, if it could be proven that properly vaccinated human beings still could be made sick and be killed by experimental injection of a large amount of pox virus into the circulation?

Moreover, at the Marbach Estate I have cattle which stand infections with very large quantities of the strongest tubercular virus perfectly, and I take pride in the fact that I have shown how high-immunizations against tuberculosis can be accomplished with great positiveness by the continuous treatment with a systematically increased dosage and with an infectious material of gradually increasing virulence. Other investigators, for instance Malm, states that he has in no way succeeded in infecting cattle highly immunized according to my method, with large doses of Perlsucht virus. Any one who is able to spend sufficient time, money and work on the problem of highly immunizing by bovovaccination, could convince himself of the possibility of almost absolutely immunizing individuals of the bovine species.

THE "FORGER" AND "CRAB."

BY WM. DOUGHERTY, D. V. S., BALTIMORE, MD.

Sometime ago I offered a prize of twenty-five dollars for an essay on the "Forger" and "Crab"; my object was to see what thought veterinarians had given to the subject. There were several who made reply, but I do not think any of them had given the subject much thought or investigation.

I will now attempt to describe a forger. He is generally a low-headed, flat-rumped horse, with a low, level gait; is not inclined to break. When going at a moderate pace, his hind feet drop into the tracks of the front feet; some fit directly in the tracks of the front foot; some half an inch beyond; some half an inch back. They do not all forge that so track.

Now, when you urge the horse to greater speed he straddles more behind, and the tracks of the hind feet go outside and beyond the tracks of the front feet. A horse of this gait generally has some speed.

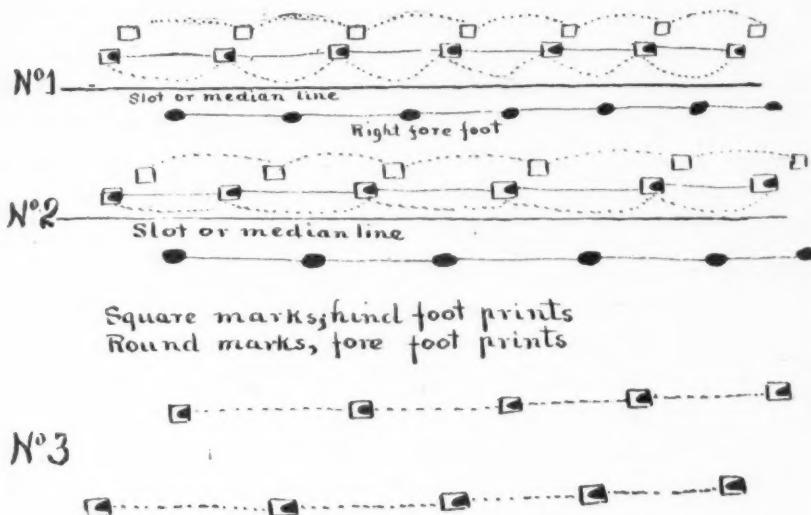
The Side-Stepping Forger.—This is generally a short-backed, round-rumped, high-headed horse, with many gaits. He trots, ambles, spanish walks, paces, single-foots, lopes and gallops, and, as I heard a man say once, he dog-trots, and when he dog-trots is the time he forges. The side-stepping or dog-trotting is well illustrated when he is under saddle, with a man in it. When in harness he will oftentimes go all the gaits in a block.

The "Crab."—This horse comes in all forms and shapes—the heavy draught horse, coach horse, and general utility horse. You will not find a trotting horse that is a "crab."

The hind feet follow the near fore foot; the right fore foot wings off to the right, the right hind foot often fits in the track of the near fore foot; the left hind foot a little to the left. When this condition exists you have the inveterate "forger." The right hind foot is often worn down to the quick just above the toe clip. The "crab" will also make three foot prints side by side, and he does not forge. When the "crab" has a little

speed he will carry the near hind foot beyond the foot prints of the near fore foot and the off hind foot. There is in some horses a little variation from the above description.

External Symptoms of the "Crab."—A horse will be sent to you to have his teeth dressed, the owner saying that he pulls on one line. You examine his mouth; you do not see any reason why he should pull on one line; his teeth are in fairly good condition. However, you dress them; he is sent back to you again with word that you must have missed some sharp corner, as he still pulls on one line. Now you get in the wagon and drive him; you will find he pulls on one line, and will also take you across the road; he may also forge, or not, as the case may be. When driving him you will notice he hugs the near shaft; also, if you look sharp, you will notice that the back strap of the harness does not follow the spinal column. If you happen to be driving in a street-car track where there is a



No. 1. Foot-prints of a crab-gaited horse, with no speed (an inveterate forger).
 No. 2. Foot-prints of a crab-gaited horse, with some speed.
 No. 3. Foot-prints of a level trotter, who forges at half speed.
 The three gaits constitute the "Crab" and "Forger."

groove for the cable, you will find that three feet go on one side of the cable slot and one on the other side. If you get down out of the wagon and run your fingers over the lumbar region you will find immobility of the region. If he is in double harness on the near side, he will hug the near trace; if on the off side he will hug the pole. If you have no car tracks with cable slots to try him in, take him on a soft road after a shower; you will there see the foot prints.

After you get a little accustomed to looking for a "crab," you can tell him anywhere. There are many "crabs" in thoroughbred race horses. The "grabbing" of the near fore foot with the off hind foot causes many falls in races.

Now I have described all the crab-gaited horses on the near side; that is, I have never seen one that is affected on the off side.

Cause of the Crab-Gaited Horse.—Many years ago, I used to hold a post-mortem on every horse I lost. In the fertilizer yard there was a pile of bones one hundred feet long by thirty feet high—a small mountain of bones. While waiting for my subject to be skinned, I amused myself by looking over the bones. I was struck by the great number of lumbar vertebræ that were ossified, and I never found any but those ossified on the near side. That passed along for sometime. I was called to treat a horse with sore throat; he had what I diagnosed as "mumps," with a scar in the region, indicating that it had been opened before. When I thought it proper I opened it again, and got pus that was characteristic of "mumps." In putting my finger in the opening I pulled out a head of timothy with about four inches of stalk. Now, this horse worried me. His temperature was about 104° , with the lumbar region immobile. His lungs were clear. However, he made a recovery with a stiff back. When he was well enough I rode after him; he pulled on one line, drove across the road, hugged the near shaft, and he had a lateral curvature of the spine. I followed that cue up and found upon post-mortem examinations of several cases that these horses that were inveterate "forgers" or "crabs," had os-

sification of the lumbar vertebrae. I have never found one so affected on the off side. I cannot recall a case of a horse that wore his hoof to the quick on the near hind foot, always the off.

THE HORSE THAT HITCHES.

I want to make another observation on the horse that hitches or the horse with a short leg. The hitching horse is quite a common one, and I have never found any one that could give a plausible reason for it.

External Appearance.—A horse with a sloping rump, with the internal angle of one ilium about half an inch higher than the other. The side on which the ilium is the higher is the side on which the leg is shorter.

Upon examination of the ischium and pubis, you will find that the union has not been made in juxtaposition; that one side is about half an inch higher than the other; hence the deformity.

Remedy.—Shoe the short leg with a thicker shoe.

"THE IOWA-NEBRASKA VETERINARY BULLETIN" has been taken over by the Missouri Valley Veterinary Association and the name changed to the *Missouri Valley Veterinary Association Bulletin*. The former editors have been retained and three new ones added. It has a subscription list of 500, which may be expected to speedily double or treble in its wider sphere. The REVIEW extends its congratulations and will look forward to its monthly visits with even more pleasure than formerly.

TO STRENGTHEN THE CONNECTICUT LAW.—A letter from Dr. B. K. Dow, Secretary of the Connecticut Veterinary Medical Association, under date of Feb. 27, says: "We are working to have our present veterinary law strengthened by an amendment at this session of the Legislature. The bill came up for a hearing to-day before the Judiciary Committee. Drs. J. H. Kelley, P. T. Keeley, F. F. Bushnell, R. D. Martin, R. P. Lyman, Thomas Bland, J. H. Gardner and B. K. Dow appeared before the committee in support of the measure. We feel very much encouraged at the present outlook, and we are going to keep at this law until we get one as strong as any state has in the Union."

A SIMPLE METHOD OF APPLYING THE METRIC SYSTEM TO PRESCRIPTION WRITING.

BY WM. W. YARD, D. V. S., U. S. VETERINARY INSPECTOR, DENVER,
COLORADO.

The popularity of the metric system in prescription writing with our brother practitioners in human medicine, due to its correctness and simplicity, has become so universal that I offer a simple method to the veterinary profession of adopting the system to our needs.

A prescription written in this system is much simpler and is much more correct than that now in use, and it strikes the reader at once with the impression that the author is a learned and progressive practitioner.

A metre (39.37 inches) is one ten-millionth part of the distance from the pole to the equator.

A gram is the weight of one cubic centimetre (c.c.) of water at 4° Centigrade, at its greatest density.

Gram and cubic centimetre are therefore terms of like value; the former referring to metric weight, the latter to metric measure. In prescription writing, the cubic centimetre may be taken as a unit for fluids, just as the gram is for solids or fluids.

TABLES.

(These are to be understood but not memorized.)

Metric Weights.

	Gm.
Milligram, $\frac{1}{1000}$ of the unit, written	.001
Centigram, $\frac{1}{100}$ " " " "	.01
Decigram, $\frac{1}{10}$ " " " "	.1
Gram, the unit.	

Metric Measure of Capacity.

Millilitre (cubic centimetre)	$\frac{1}{1000}$ of the unit.
Centilitre,	$\frac{1}{100}$ " " " "
Decilitre,	$\frac{1}{10}$ " " " "
Litre (1000 c.c.—about a quart)	—the unit.

Relative Values of Apothecaries' and Metric.

Practically, one gram is equal to 15 grains Troy (more exactly 15.432), therefore:

Gr. j = .06	grams, exactly	.06479
Dr. j = 4.00	" "	3.8874
Oz. j = 31.00	" "	31.103

A two-ounce bottle is supposed to contain 16 doses of a drachm (teaspoonful) each. In reality, however, 15 is nearer the fact, since the average teaspoon holds more than a drachm.

If, now, we order a two-ounce bottle with a teaspoonful dose, each dose to contain one grain of any substance, the whole amount of the substance will be fifteen times one grain (fifteen doses), or fifteen grains; which is just equal to one gram.

So, for each dose of a grain or minim let us order a gram of the substance desired, and the prescription is complete. Example:

	Gm.
R Ammon. carb. (gr. j in each dose)	1.00
Ext. scillæ fl. (m iss in each dose)	1.50
Ext. senegæ fl. (m v " ")	5.00
Tr. opii camph. (m xij " ")	12.00
Aq. cinnamomi (ad 3 ij), ad	60.00
M. S. Teaspoonful at a dose.	

Now, if we wish to order a four-ounce bottle with a dessert-spoonful dose, the same holds true: the bottle and the dose being each twice as large as in the case just given. With an eight-ounce bottle and tablespoonful dose, the same rule of course applies. Example:

	Gm.
R Ext. scillæ fl. (m j in each dose)	1.00
Ext. glycyrrh. fl. (m x " ")	10.00
Aq. laurocerasi (m xl " ")	40.00
Aq. (ad 3 viij) ad	250.00
M. S. Tablespoonful at dose.	

If it is desired to give a two-ounce bottle with a tablespoonful dose, it is merely necessary to order one quarter as many grams as before; the dose, a tablespoonful, being four times the usual size. If a four-ounce bottle and teaspoonful dose, order

twice as many grams as usual ; if, on the other hand, it is a four-ounce bottle and a tablespoonful dose, order half as many grams as usual. If a six-ounce bottle and a teaspoonful dose, order three times as many grams as usual.

It is needless to suppose more cases ; the principle will be evident to all. Example :

	Gm.
R. Ac. hydrocyan. dil.	(四 ss in each dose) 1.00
Ext. ipecac. fl.	(四 $\frac{3}{4}$ " " ") 1.50
Syrupi scillæ	(四 xxv" " ") 50.00
Mist. glycyrrh. comp. (ad 5 iv)	ad 120.00
M. S. Teaspoonful at dose.	

Now, let the reader complete by the Apothecaries' system the preceding prescriptions, and it will be seen at once how much simpler is the metric system just described. No multiplying of grains or minims, and reducing to drachms, etc., is needed, and a glance at the column of grams shows instantly the number of grains in each dose. Example : In ordering an eight-ounce bottle with a drachm dose, each dose to contain one grain of opium, the total amount of opium ordered would be 64 grains ; whereas, by this metric method, the prescriber would write for 4 grams, which is, exactly, equivalent to 61.728 grains.

There remains one subject to be considered. The apothecary, in filling prescriptions for grams, puts the bottle on the scales and balances it with shot ; then puts in the required weight, and pours in the medicine till it balances, whether (liquid or solid) ; then another weight, and so on.

Now, suppose we wish to order some fluid of a specific gravity quite different from that of water—syrup, for instance. A given weight—say sixteen grams—of syrup does not have the same bulk as sixteen grams of H₂O, but is only equal in bulk to twelve grams of water, since syrup is one-third heavier than water. Hence, it is evident that, desiring a certain bulk of syrup in our prescription, we must order one-third more of it than we would if a fluid having a specific gravity like that of H₂O.

In the case of glycerine, which is one-quarter heavier than water, we must order one-quarter more.

The two corrections which I have mentioned for glycerine and syrups are the only two that need be made in prescription writing, as the difference in bulk of other fluids is so slight they may be ignored.

If the prescription is for liquids alone, we can write in cubic centimetres. Example:

	C.c.
R Tr. nucis vomicæ	(vij in a dose) 3.00
Tr. cinchonæ comp.	(dr. j " " ") 60.00
Syr. sarsaparillæ comp.	(dr. ij " " ") 120.00
Aq. (ad 3 viij)	ad 250.00
M. S. Tablespoonful at dose.	

If solids and liquids are both needed. Example:

	Gm.
R Pulv. rhei	(gr. v in a dose) 5.00
Na. bicarb.	(gr. x " " ") 10.00
Bism. subnit.	(gr. xij " " ") 12.00
Syrup. tolu.	(dr. j " " ") 60.00
Aq. (ad 3 viij)	ad 250.00
M. S. Shake. Teaspoonful a dose.	

This can be applied to powders, pills, and similar preparations. Just order the prescription on a basis of fifteen powders or pills; then each grain desired in single pill or powder will correspond with one gram in the sum total.

There is one thing to remember in writing for dry preparations, namely, for every grain we order in a dose, we get about $1 \frac{1}{35}$ grains; since one gram equals 15.432 grains.

"I HAVE BEEN A READER OF THE REVIEW so long that it seems as if I were one of the many stockholders and that we have you employed to run it for us, and I like the way you conduct it so well that I enclose draft of three dollars as my contribution toward keeping you another year. Please accept it with my best wishes. Hope the rest of the stockholders will respond promptly, and thus encourage you to keep up your estimable labors for years to come." (W. C. Hanawalt, M. D. C., Galesburg Ill.)

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MODERN VETERINARY METHODS.*

BY WALTER J. TAYLOR, D. V. M. ITHACA, N. Y.

DIFFERENTIAL DIAGNOSIS.

ANTHRAX.

Anthrax is an infectious disease occurring sporadically and in epizoötics in herbivora and omnivora. It is communicable to nearly all warm-blooded animals and to man. It is characterized by the presence of *Bacterium anthracis* in the diseased tissues or liquids, also by an enlarged spleen, blood extravasations and by local gangrene.

Anthrax is among the oldest infectious diseases of animals. Homer, Plutarch, Livy and others have given descriptions of the disease in epidemics and epizoötics occurring before the Christian Era. It is now generally believed that the plague of boils, as described by Moses, "visiting the Children of Israel" during their sojourn in the wilderness was an outbreak of anthrax, referred to in modern medicine as malignant pustule when occurring in the human family. It was designated by the Arab physicians as the "Persian Fire." In the literature of the fifteenth, sixteenth, seventeenth, eighteenth and nineteenth centuries extensive outbreaks are mentioned.

Much new information concerning anthrax was acquired during the fifth decade of the last century. In 1885, Pollander announced the discovery, which was first made by him in 1849, of minute unbranched rod-shaped bodies in the blood of cattle dead of anthrax. A long series of observations culminated in Robert Koch's careful description of the morphology of the specific germ in 1875.

Anthrax is a widely disseminated disease. It has occurred on the continent in Europe, Eastern and Central Africa, England, Australia, India and the United States. Very few, if any, countries may be said not to have suffered from the disease. The Eastern part of America seems to have been most affected. A knowledge of the specific infecting organism, the proper disposal of the carcasses and preventive inoculation have done much in stamping out the disease in this country. Certain infected areas, however, suffer sporadically for a shorter

*This series of articles was begun in the December REVIEW, the first installment being on "Diagnosis;" that for January treated of "Differential Diagnosis," with "Tuberculosis" as the special subject; "Glanders" in February, and "Rabies" in March.—[EDITOR].

or longer period, owing to the high degree of resistance possessed by the spores of the organisms.

Symptoms.—In anthrax the symptoms vary not only in the different species of animals but also in different individuals. The most characteristic features of the disease are the suddenness of the attack, the grave general disturbances and the high elevation of temperature. Anthrax has been classified, according to its course, as peracute, acute and subacute.

The peracute or apoplectic anthrax gives rise to symptoms of cerebral apoplexy. The animal becomes suddenly ill, staggers about for a brief period and falls. There is often a bloody discharge from the mouth, nostrils and anus. Death usually takes place in from a few minutes to an hour. Sheep and cattle are most frequently affected with this form of the disease. During the beginning of an epizootic they are often found dead.

The disease runs a somewhat slower course in the acute form although not usually lasting to exceed twenty-four hours. There is a rapid rise of temperature of 5, 7, or 8° F. The rise in temperature is accompanied either with signs of congestion of the brain or of the lungs. Occasionally premonitory symptoms are observed, consisting principally of digestive disturbances and general depression. In cattle and sheep and generally in horses, the disease assumes the form of a septicaemia, *Bacterium anthracis* being present in the blood before death. If the specific organism cannot be found in the blood of cattle and sheep before death it is safe to conclude that we are not dealing with anthrax.

In the subacute form commonly known as anthrax fever or intermittent anthrax, the symptoms are more sharply defined and the course is longer. Digestive disturbances, especially colics, generally complicate the symptoms. Epizootics which have arisen in the peracute or the acute type generally terminate in this form.

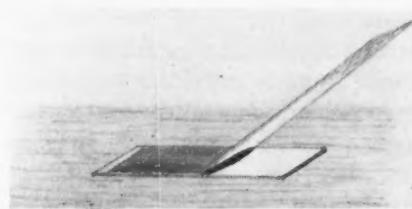
External manifestations.—In horses and swine the first symptom of the disease may be a localized swelling. This is especially true of swine, and the specific organism may not be encountered in the circulating blood of this species of animals. In horses these swellings may result from a cutaneous infection. Circumscribed cutaneous swellings, hot and painful, are at first noticed. These become cold and painless, doughy and with a tendency to become gangrenous.

In swine local lesions of the larynx and pharynx are at first noted. Swelling of the intermaxillary space takes place. This

may spread along the trachea, giving rise to difficulty in swallowing and dyspnoea. In any case the anthrax bacteria may be found in the oedematous fluid contained in these swellings.

Differential Diagnosis.

Anthrax is to be differentiated from certain specific diseases as symptomatic anthrax (black-leg), malignant oedema and septicaemia haemorrhagica. It is equally important not to confuse anthrax with certain non-specific disorders and accidental causes of death. Among these may be mentioned poisoning, cerebral apoplexy, pulmonary congestion, heat apoplexy, death from lightning, or acute gastro-intestinal inflammations. The suddenness of the attack, the severity of the specific cases and the short duration of the disease may tend to a mistaking of anthrax for some of the above factors.



Drawing showing the method of making a blood smear for purposes of examination.

Finding the Bacterium anthracis in the blood of affected or dead animals.—Considerable care is to be observed not to mistake a certain saprophytic bacterium which develops rapidly in the blood of animals shortly after death. These organisms resemble very closely the anthrax bacterium, but are a little longer and not quite so broad. A drop of blood is secured from the suspected animal and smeared upon a glass slide. By touching the drop with the end of a perfectly clean microscopical slide a smear is easily made by drawing it over the surface of an equally clean slide, thus making a well-spread film upon the second slide. Allow it to become thoroughly dry and stain with any of the aniline dyes. (Jenner's stain has been found especially satisfactory.) Wash quickly and lightly and dry as rapidly as possible. This is best accomplished by blowing vigorously upon the film to remove the water. It is then ready for examination. The anthrax bacteria will appear as short rods with perfectly square ends, of a bluish color and surrounded by a capsule. Occasionally these rods appear in the form of chains

It has been found that not infrequently it is very desirable to make cultures from the blood and tissues of suspected animals before diagnosis is pronounced. This is easily accomplished. With a sterile wire loop smear a loopful of blood or a little tissue upon the surface of a tube of slanted agar. It is then kept at a temperature of 35-37° C. for twelve to eighteen hours. If anthrax bacteria are present an abundant growth will be observed after that time. On the other hand, if the organisms supposed to be anthrax bacteria were the putrefactive germs no growth will be observed, as these are strict anaerobes and will not grow in the presence of atmospheric oxygen. If upon examination of the growth anthrax bacteria are found the diagnosis is made doubly sure.

Post-mortem findings.—On account of the high degree of resistance possessed by the spores of the anthrax bacteria, *post-mortems should in no case be made except where diagnosis can be made in no other way and where excellent facilities are at hand or easily procured for thorough disinfection.* A room provided with a cement floor is much to be preferred. Where the specific infecting organism is demonstrated in the blood of animals suffering from suspected anthrax, it is unwise to perform post-mortems upon dead animals as spores are formed as soon as the organisms are exposed to the atmosphere. If it is deemed necessary to hold an autopsy, the following conditions will be revealed in a case of well defined anthrax.

Hæmorrhages varying from petechiae to blood extravasations will be found in the submucous, subserous and subcutaneous tissues. The capillaries are distended. The lymphatic glands may be hæmorrhagic or edematous. The muscles are usually darker than normal. In the larger cavities a sanguineous fluid is generally found. The spleen is considerably enlarged, the pulp soft, of a dark red color, the capsule is tense and may be sprinkled with ecchymoses or small areas of hæmorrhage. The liver and kidneys are highly congested and enlarged. The contents of the intestine may be bloody. The lungs are greatly congested. The mucous membrane of the pharynx and the opening of the larynx is often so edematous that stenosis of the larynx takes place. Extravasations of blood may occur in the anterior chamber of the eye and under the retina. The blood is dark, having a tarry or varnish-like lustre and does not coagulate readily.

Disposal of the carcasses of animals dead of anthrax.—In the disposal of carcasses of animals dying of anthrax, the utmost

care and thoroughness of destruction should be carried out. The safest and most efficient method consists in burning. This is quite easily accomplished when plenty of dry wood is available. In case burning cannot be carried out and the animals have to be buried, they should be buried deep enough to insure safety. Such animals should be buried at least ten feet under the ground and the carcass covered with a thick layer of quick lime before the earth is placed thereon. Inefficient means of disposal of the dead animals may do much toward the spreading of the disease.

Differential Stain.—The blood of animals dead of anthrax possesses a peculiar staining property, which was first described by M'Fadyean and which he considers of value in the microscopic diagnosis of the disease. The method briefly stated is as follows:

Place a small drop of blood on a clean slide and quickly spread with a platinum needle until it covers an area about 12 mm. in diameter. Protect from dust and allow to dry thoroughly. Heat the preparation in a small flame several times until too hot to be borne by the skin in the palm of the hand. After cooling, stain a few seconds with a one per cent. aqueous solution of methylene blue, after which pour off the free stain and dry quickly and thoroughly, after which it is ready to mount in balsam. Upon microscopical examination there will be revealed an occasional leucocyte and the anthrax bacteria. The nuclei of the leucocytes will be stained a greenish-blue tint, while the anthrax rods are stained blue. *The peculiarity of the reaction lies in the color of the amorphous material which is present between and around the bacteria.* This material presents itself in the form of coarse or fine granules of a violet or reddish-purple color, which is in sharp contrast to the tint of the bacteria or the cell nuclei, especially with brilliant lamp or gas light. This reaction is not observed where the putrefactive organism alone is present. If anthrax bacteria and the saprophyte are both present the peculiar coloring is seen around the anthrax bacteria only.

Owing to the fact that the spores produced by the anthrax bacteria have the power of resisting extremes of temperature and atmospheric variations, it is of vital importance that every possible precaution be taken to prevent the spread of the disease. In those affected localities where the disease occurs sporadically protective inoculation may be resorted to as a means of checking a recurrence of the malady from year to

year. Several methods are available by which a certain degree of immunity may be obtained through protective inoculation. These subjects, however, will be treated in subsequent articles.

(To be continued.)

"WATER PEARL," a three-year-old thoroughbred stallion for which \$100,000 had been refused, died at Sheepshead Bay, March 10, of acute enteritis, with a small rupture of the pyloric portion of the stomach. The horse was insured for \$25,000.

THE NEBRASKA VETERINARY LAW.—On January 17 the House recommended for passage a bill amending section 4 and section 9 of the law now in force. This bill was not discovered by any of the veterinarians and so no one appeared before the committee of the House on Medical Societies who recommended it for passage. The bill was then discussed by the House and was recommended for passage by that body. The legislative committee arrived in Lincoln on Monday morning, January 21, and began active work. They canvassed the situation thoroughly and immediately became in touch with the veterinarians throughout the state. It was soon discovered that it would be best to call into service the majority of the veterinarians in the state, so all were communicated with by telegraph or telephone. The result was that on Wednesday this bill was killed by an overwhelming majority. On Thursday, the 24th, the bill introduced in the Senate came up before the committee and after a liberal discussion by the lawyers for the opposite side, and with the aid of our attorneys, and a large number of our graduates being present from all over the state, this bill was likewise recommended to be indefinitely postponed. So far we have stood our ground nobly and it was due to the solid front that our graduates presented, showing the harmony existing in our association. Every member did his very best to bring about the desired results. Nowhere in the West has ever such an overwhelming victory been achieved as in the State of Nebraska. Too much credit cannot be given to the efficient committee on legislation, who worked until early morning, sacrificing their business interest and stayed on guard, regardless of the condition at home, until everything was safe. We owe this committee our hearty thanks. The members of the committee are Drs. Simonson, Jensen and Anderson.—(*Iowa-Nebraska Veterinary Bulletin, Feb.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

FURTHER CONSIDERATIONS OF NUCLEIN AS A THERAPEUTIC AGENT IN VETERINARY PRACTICE.

By E. R. VOORHEES, D. V. S., Somerville, New Jersey.

Two years ago I called the attention of the veterinary profession to Nuclein as a means of producing leucocytosis and phagocytosis by intravenous administration. Since that time, I have used the remedy whenever a favorable opportunity presented itself, but my conservatism has prevented me from abandoning the generally recognized methods of treatment, and Nuclein has been reserved in many cases until I became alarmed at my patient's condition, and then used as a last resort. This, it seems to me, is a very severe test, but it has accomplished results that at times seemed almost marvelous.

Lowit studied the effects of various albuminous and organic principles injected into animals, finding hypoleucocytosis followed by varying grades of hyperleucocytosis from peptone, pepsin, nucleinic acid, nuclein, etc.

That there is a rational basis for the employment of artificial leucocytosis in certain diseased processes there remains no doubt, as both the phagocytic and bactericidal powers of the blood are increased thereby; yet I would not advise the administration of any remedy that would excite continuous leucocytosis, but better administer it at the commencement of a disease in an effort to abort it, or if not successful in this, wait until the crisis has arrived and then use the remedy to tide the patient over the danger point.

I will not consume your valuable space by enumerating a great number of cases treated by Nuclein injections, but will select four that will give the reader a general idea of how I have used the remedy in my practice:

About one year ago I was called upon to treat two cases of broncho-pneumonia following an attack of influenza, among a carload of horses belonging to Mr. G. A. Van Doren, of this city. I am selecting these two cases, as they appeared to be as near alike as two cases could possibly be, and by way of experi-

ment I used Nuclein on one and Tallianine on the other. Each received one intravenous injection daily, and one appeared to convalesce as rapidly as the other. These horses were advertised for sale on a certain day and were shown in harness against my advice. As a result they both had a chill that same evening followed by a severe relapse; each animal then received two injections daily of Nuclein and Tallianine respectively—the Tallianine subject dying on the third day, and the one receiving Nuclein on the fourth.

On the 21st of last June I was called to see a horse at East Hampton, L. I., belonging to Mr. Charles J. Fisk, of the banking firm of Harvey Fisk's Sons, New York City. This horse had been sick over a week with broncho-pneumonia, and was being treated by a local veterinarian, who was using the usual remedies. Upon my arrival I found the animal with a temperature of $106\frac{1}{2}$, pulse 80 and very weak, respirations 60. He was in a single stall, and was so weak that the attendants cautioned me when going in to examine him to be careful as he was likely to fall upon me. I immediately gave him 20 c.c. of Nuclein and normal salt solution (equal parts), with a grain of strychnia every three hours to maintain the action of the heart; this was at 8 o'clock P. M. The next morning at 5 o'clock his temperature was down to 103. I gave him another injection that morning of the same solution that he had received the night before. His temperature remained after that below 103 during his entire convalescence, which was rapid and uneventful.

On December 31st last I was called to the stable of A. C. Vail, of Plainfield, New Jersey, to see a valuable carriage horse he had purchased one month before in New York City. The groom had noticed that he was dull and listless that morning, and I found him with a temperature of 106, and my diagnosis was influenza. In a few days the case developed into double pneumonia, and, as I had not administered Nucelin on my first visit I continued to use the ordinary remedies, all the while keeping a close watch of his condition. After a week his temperature was reduced to $102\frac{1}{2}$, and he appeared to be doing well. The day following, without any apparent cause, his temperature jumped to 106. Large doses of acetanilid, strychnia and alcohol seemed to produce the desired effect and his temperature fell within twenty-four hours to 103 and remained there for two days. Again the attendant notified me by telephone that his temperature was rising, and upon my arrival the

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thermometer registered 107. His respirations were very rapid and labored, and I looked upon the case as hopeless; but I immediately gave him an intravenous injection of Nuclein, using one of Parke, Davis & Co.'s 20 c.c. hermetically-sealed tubes containing equal parts of Nuclein and normal salt solution. The next morning I received word that the horse's temperature was down to 102, and upon my arrival in the afternoon I found his temperature $101\frac{1}{2}$. The next day it was normal and I did not have occasion to repeat the dose, as his recovery was very rapid from that time.

A FEW AFFECTIONS OF THE TENDONS TREATED BY AN IODINE PREPARATION.

By ALEXANDER GLASS, A. M., V. S., Philadelphia, Pa.

For some time I have been experimenting with Iodine-Petrogen, 10 per cent., mostly on thoroughbred horses, for various affections, and have obtained very gratifying results. In fact, in one or two diseases it has proven almost specific in effect.

The first affection in which I employed the medicament was curb or enlargement of the sheath of the tendo-metatarsi, particularly in young horses; and on quite a large number of these cases I found that if the curbs were recently formed and had fever in them, if treated early, a daily application, well rubbed in and continued for two or three weeks, caused an almost entire absorption and return to normal condition. In older cases the effects, while not so marked in character, were at the same time more than ordinarily pronounced.

In bowed or strained tendons, especially in horses that have been hurt in racing, in every case, if taken early, and not in old cases that were redeveloped and the horse laid up, the results were extremely satisfactory. In ten cases of bowed tendons treated, the majority had hardly a trace of the trouble remaining in any of them.

In this connection too much stress cannot be placed on the fact that the preparation must be rubbed in regularly once or twice daily for two or three weeks, thoroughly massaging until it is entirely absorbed, continuing the rubbing for one-half hour if necessary, as this method of application will greatly enhance in value the remedial activity of the preparation.

There is another disease common in two-year-old colts, namely, osslets, usually developed from premature and severe

training, in which I used the Iodine-Petrogen; and my experience in these cases fully demonstrated that the results were really wonderful, as almost complete absorption occurred if the parts were carefully massaged for half-hour daily with the preparation for fifteen to twenty days.

In conclusion, I cannot too strongly urge the thorough rubbing in of the preparation, as this causes entire and rapid absorption of the medicament, which penetrates to every part of the affected tissue, inducing resolution in a short time.

Of course, there may be many other affections in which the preparation would prove very useful, but I restricted my experiments entirely to conditions of the tendons. In all instances I found that it possessed many advantages over the ordinary tincture of iodine, in so far as it penetrated the integument very readily if accompanied by careful massage.

RECORD IN BOVINE PRECOCITY.

By GEORGE R. YOUNG, D. V. S., Omaha, Neb.

Visiting one of my clients last Sunday afternoon he informed me that he had something he thought would interest me. On going to the stable he showed me a cow and a calf that looked natural enough except that the cow looked unusually small. The calf was born on March 14th, 1907, and the mother on March 2d or 3d, 1906. I questioned him very closely to see if he were possibly mistaken, but he was quite positive as to the time. He had no idea she was going to calve till he found her, and then had to specially exert himself to deliver her normally. A precocious youngster!

A NEGLECTED CASE OF MASTITIS.

By W. C. HANAWALT, M. D. C., Galesburg, Ill.

Mr. C., a dairyman, called me to see a Holstein cow, recently fresh, with an immensely large and swollen udder. It was as big as a bushel basket or larger, and looked as if it might weigh several hundred pounds. The swelling extended forward almost to the front legs, taking the course of the lacteal veins. This forward swelling was soft and fluctuating.

I made an opening in this and a creamy pus escaped to the amount of several pints. Washed it out with antiseptics and gave calcium sulphide internally, with foxglove, and she made a complete recovery.

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SURGICAL ITEMS.

BY DRs. L. A. AND EDWARD MERILLAT, CHICAGO, ILL.

THROMBOSIS OF THE ILIAC ARTERIES OF THE HORSE.*

BY PROF. UDRISKI.

Thrombosis of the iliac arteries is undoubtedly a rare, grave disease, and whose diagnosis, especially at the onset, may be overlooked by many practicing veterinarians.

I had the occasion to see, to observe minutely and to diagnose such a case, and herewith report it with all of the details which concern this important subject. The animal in question belonged to Her Royal Highness, the Princess of Roumania, for whose permission to publish the case I am profoundly thankful.

But let us return to the patient constituting the subject of my communication—the American hunter “Weathland,” nine years old, 1.62 metres high, ringbone on the right hind leg and tail amputated. In the month of November I was called to

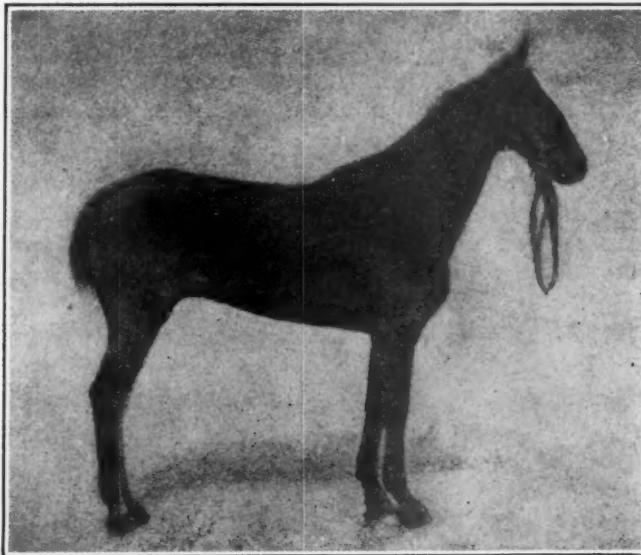


FIG. 1. THE HORSE "WEATHLAND" AT REST.

*Translated from *Arhiva Veterinara*, Dec., 1906.

examine him for a pronounced lameness, which I diagnosed as a false luxation of the patella, and which completely disappeared in three days from irritant frictions and rest. In the month of December I was again called to see the same animal, and learned from the anamnesis given by Her Royal Highness, who rode the horse, that he had rendered excellent service at the Royal manœuvres during September and was admired by all the foreign military attaches. From then, although less frequently mounted, it was noticed that he tired easily, and that on the day our observations began, Her Royal Highness found that while he traveled well at first, a trot of several minutes provoked a manifest embarrassment of the posterior limbs that accentuated more and more with exercise.

In proceeding with the examination, I found that the general health was good; temperature, 37.9° C.; pulse, 26 to 30—distinct and full; respiration, 5 to 6. The mucous membranes were slightly icteric. On percussion there was increased dullness in the precordial region, but there were no abnormal sounds on auscultation. On rectal exploration the aortic pulsations were normal, but the tension of the right iliac, by comparison, was found less pronounced than the left. The urine was normal.

On palpation of the collateral metatarsal arteries, there was a parallel diminution in the tension of the right one; the general sensibility was conserved; there were no zones of anaesthesia; the patellar reflexes were lessened; the muscular tension increased; the pupils were slightly dilated; the faeces were hard and dry, and the attitude of the ears was normal; all of which symptoms were observed while the animal was at rest. On the second day the temperature was 38 C., pulse 30, respirations 6, and the other symptoms were the same. On the third day the temperature was 38 C., pulse 35, respirations 6. The pulse was not isochronous with the heart beats. Outward and inward movements could be observed at the entrance of the chest. The animal wabbled behind and sank at the haunches when mounted. *Trotted for four minutes*, the right hind leg became stiff in abduction and the hocks were not flexed; *after five minutes*, the same phenomena began on the left leg and the whole gait became disordered; the horse avoided a straight line, but walked half obliquely to the left; *after seven minutes*, he could scarcely remain standing, the respirations were much accelerated, the nostrils dilated and an accentuated perspiration began to appear anteriorly. *After exactly eight minutes*, the animal laid down, at which moment

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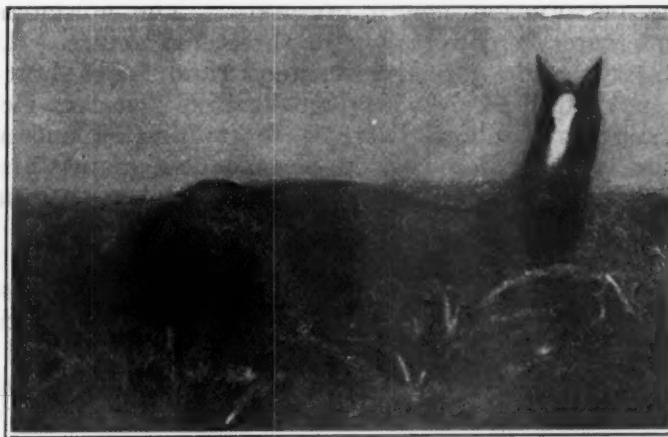


FIG. 2. ANIMAL AFTER EIGHT MINUTES' TROTTING.

the respirations were 46, the pulse 54, and the temperature 38 C., with an abundant perspiration extending to the level of the external angle of the ilium. The respirations were abdominal, the eyes appeared to protrude from the orbits, the nostrils were dilated, the ears thrown back, the back arched, and the abdomen tucked. Violent contractions of the sterno-abdominal muscles and the muscles of the extremities were also observed, together with elimination of intestinal gas per anum. The mouth was frequently opened and the tongue continually protracted and retracted; the mucous membranes were cyanotic



FIG. 3. ANIMAL BEGINNING TO RECOVER AFTER 20 MINUTES.

and the perspiration flowed profusely. The muscular contractions were so powerful as to threaten fracture. During these intervals the animal rose, stood rigid for a short time, and then fell to his knees, leaving the hind quarters elevated. These different positions were of short duration and after a time, the animal succeeded in permanently maintaining the standing position. *After twenty minutes*, walking became possible and in one hour everything was normal.

These symptoms could be provoked five to six times a day if the animal was submitted to a trotting exercise of several minutes, and I could affirm that with almost mathematical precision, after eight minutes of exercise the animal would be recumbent. I made this demonstration before a number of persons, who were astonished at the precision of the succession of the symptoms above described.

In the face of the symptoms, it was evident that there existed an embarrassment of the arterial circulation of the poste-

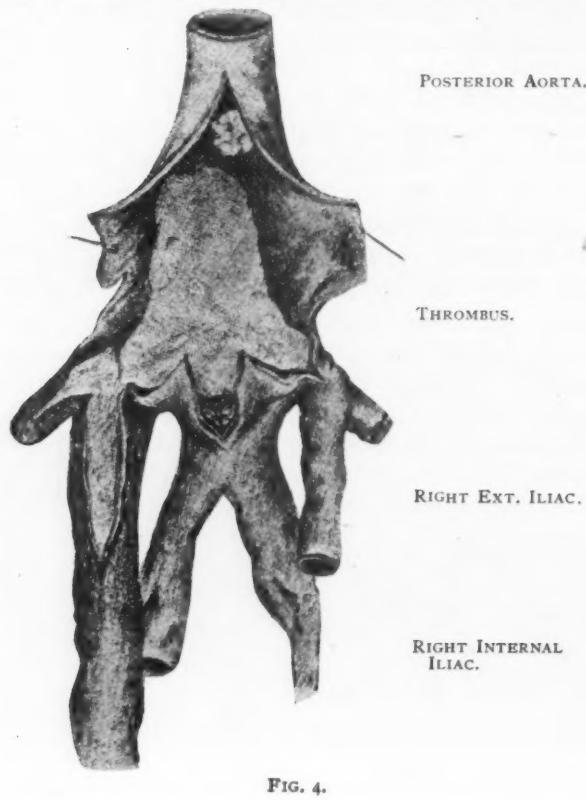


FIG. 4.

rior extremities, which I then diagnosed as thrombosis of the iliacs. I prescribed rest and the administration of ten grams of potassium iodide per day for fifteen days without results. By communicating the diagnosis and, above all, the unfavorable prognosis to Her Royal Highness, her consent to sacrifice the animal was obtained.

At the autopsy, the most important lesions found were: Cardiac hypertrophy, slight pulmonary emphysema, and exceptionally beautiful thrombotic lesion at the termination of the abdominal aorta and the iliac arteries, especially of the right one. (Fig. 4.)

* * *

Professor Hendrickx, in the *Annales de Médecine Vétérinaire*, published the following very interesting observation on the same subject: It occurred in an imported American gelding, seven years old and 1.6 metres high. During more than one year he worked to a wagon to the entire satisfaction of the owner. At a certain time, he began to manifest some defect in the gait of the posterior extremities, the right leg suffering somewhat more than the left. A *confrère*, in the absence of all external lesions, diagnosed the condition as rheumatism, for which he prescribed an internal and an external treatment, with absolutely no results. On the contrary, the embarrassment accentuated more and more, and in strict obedience to the amount and the rapidity of the exercise.

In this condition the animal was presented to Professor Hendrickx. From the attitude presented in the stable, nothing would permit one to suppose that the animal was affected with such a functional disorder. The support was normal and one leg was not lifted higher than the other. Examination of the posterior legs was absolutely negative, and inspection and palpation disclosed nothing abnormal. Taken from the stable and led about, the animal was spry, reared up, and showed no defect whatever nor the least hesitation. But if trotted for ten minutes, he would "break down" completely, being unable to remain upright. The idea of thrombosis immediately suggesting itself, the Professor, desiring to provide the students with a case that was assuredly interesting, easily induced the owner to send the horse to the hospital of the Veterinary School. In proceeding to examine the horse on the next day, the absence of any analgesic zone in any part of the hind legs was first verified. It was found that pricking the animal at various parts of the legs provoked perfectly normal reaction on the part of

the animal. Submitted to walking exercise everything remained normal for seven minutes, but after this moment a manifest embarrassment declared itself in the posterior extremities; lameness appeared in the right side, presenting no special characteristics at first, but soon the animal became unable to flex the hocks, the legs became rigid and the toes dragged on the ground. As soon as the horse was stopped, trembling of the muscles of the buttocks was observed. Trotted, the same manifestation appeared on the left side and soon the embarrassment became so pronounced that the animal was unable to advance or remain standing, and fell down in spite of every effort to prevent. The exterior aspect of the animal was also much modified. The back was arched, the abdomen tucked, the respiration accelerated, the nostrils dilated, the eyes staring, and the tension of the facial muscles indicated extreme suffering. Soon profuse perspiration appeared anteriorly and extended backwards only to the level of the flank. This peculiarity was particularly more evident, because, it being winter, there was no evaporation of the perspired water in the front part of the body and the hind parts remained perfectly dry. The same applies to all of the regions anteriorly, which are manifestly warm, while the posterior regions denote that there is more of a diminution of the surface temperature. The animal remained down for ten minutes and then rose spontaneously, still presenting a slight rigidity of the posterior extremities. The derangement persisted during twenty to thirty minutes, but thereafter not a single anomaly remains.

He repeated this experience more than a hundred times, each time bringing out these same symptomatic manifestations with almost mathematical exactness, and it was decided that an obstacle to the circulation of the posterior extremities should exist. The quantity of blood that could pass through the thrombotic vessels was sufficient, as long as the muscles were at rest, but as soon as the functional activity of these organs created a demand for considerable quantities of blood, these ischemic manifestations supervened.

It was interesting to search for the location of the obstacle. As the symptoms were bilateral, it was logical to search at a point common to both extremities. It was then thought probable that the seat would be found at the terminal end of the posterior aorta, and could be determined by a rectal exploration. Unfortunately this exploration did not give the precise indications; palpation of the aorta and the iliacs did not dis-

close a single anomaly of texture; the vessels appeared to present normal tension, and the pulsations were isochronous with the heart beats.

* * *

Another case is related by H. S. Elphick, of Newcastle-on-Tyne, and published in the *Veterinary Journal*, May, 1906. Although incompletely described, in view of their rarity I will nevertheless recite the case almost *verbatim*.

The subject is an old, black pony, the property of an inhabitant of Newcastle. It had always enjoyed good general health and had never been sick nor lame. On the 24th of November, 1905, the writer was summoned to call as soon as possible to visit a horse that was very lame and asphyxiating. On arrival he learned that the pony having been taken out for exercise, slipped on a crossing, with the hind feet, without falling entirely down, and that the groom had cured it by the application of warm clothing. The pony was brought out, but the examination failed to disclose anything abnormal. In the writer's words, "I recommended moderate exercise in the alley or stable for the following morning, but when this was attempted, the groom observed that the pony was lame and returned it to the stable and called me again. In this second examination I still found nothing and recommended rest. I visited it again on the 2d and on the 5th of December, finding the same condition and recommended another week of rest. I revisited it in company with my father on the 12th of December, and, bringing out the symptoms fully, the pony was returned to the stable with the greatest difficulty; the lameness was so acute. On return to the stable it manifested considerable pain in the legs, by getting down and up continually, as if affected with cramps. Suspecting thrombus, I made a rectal examination and found pulsations in the left iliac, while the right one was pulseless and hard. I consulted the proprietor and recommended that the animal be killed; but, as he was much attached to the pony, he asked if I could not try some other treatment. I prescribed potassium iodide and biniodide of mercury(?) and a long rest of seven to eight weeks."

"On visiting him again during December, without moving him from his box, he was in good spirits, rearing and dancing about in the stall. The treatment was continued until January 24th, 1906, at which time he was trotted on the road, but soon lamed so badly that he was required to be almost dragged to the stable. The pain was so severe that I found it necessary

to give him calmative remedies. The owner finally consented to the killing of the patient. On post-mortem examination all of the thoracic and abdominal organs were found sound. I found an extended thrombosis of the right internal and external iliac arteries and an incomplete obstruction of the left arteries. The accompanying photograph, taken after the dissection, shows the condition of affairs. Unfortunately the dissection was made in such a manner that the right side might have been mistaken for the left. I regret not having made a rectal exploration before shooting the patient, as I am certain a thrombus would also have been found on the left side. I am also more convinced of this because the animal suffered as much and manifested as much pain on one side as the other. I never observed any coldness of the extremities, nor any local nor profuse perspirations. I might mention that the subject was very fat, kept in good condition, and never showed any exaggerated movements except that of dragging the legs.

"The question now arises as to whether the slipping on the street crossing was the original cause of the thrombus or only a coincident. The pony had never lamed before."



FIG. 5. PHOTOGRAPH OF DISSECTED SPECIMEN, TAKEN FROM H. S. ELPHICK'S CASE.

Prof. Poenaru (Bucarest) published in *Le Progrès Vétérinaire*, January, 1898, under the title "Thrombosis of the External and Internal Iliac Arteries," a clinical lesson that is equally incomplete. The subject was a Hungarian draught horse, nine years old. "We could obtain no knowledge of his antecedents," says Prof. Poenaru. "The one thing that was clearly mentioned is that the horse ate well and was in good general health, but if pulled after a course or two, he became weak in the hind quarters, staggered, and sometimes broke down entirely. These alarming symptoms would disappear if the animal rested a few minutes. On the 20th of April, in an effort to verify these statements by trotting the horse for one hour, the hind quarters became paralyzed; the

posterior limbs were so wobbly that they fell across each other at the fetlocks. An examination while in this condition showed that the pulse at the facial artery was full, the mucous membranes injected and a part of the body covered with perspiration. On rectal exploration the aortic and iliac pulsations were distinct, and pulsations taken at the femorals and metatarsal arteries were still perceptible, thus leaving the symptoms of thrombosis of the iliacs incomplete, but the manner in which the paralysis appeared and its disappearance after rest, suggests such a lesion of one or more of the collateral or terminal branches, but with only an incomplete obturation." Prof. Poenaru says nothing about the termination of this case. He simply mentions that it was treated with potassium iodide, but does not indicate the dosage, the duration nor the results obtained.

(To be concluded in May number, with Annotations.)

A RABID HORSE.—A horse owned by Thomas Kearney, Meriden, Conn., developed rabies on the morning of Feb. 28 as a result of having been bitten by a rabid dog three weeks previously, and, breaking out of the stable, it held the south end of the town in a state of terror until, an hour after its escape, it was lassoed by Veterinarian Beckley and shot. The account states that Dr. Beckley made an examination of the brain, which confirmed the diagnosis.

THE MINNESOTA PRACTICE LAW.—The Minnesota veterinarians are asking for a revision of the veterinary practice act, which ought to make it as good, if not the best in the country. The principal changes asked for are as to giving the Examining Board discretion concerning colleges, by inserting the word "reputable" in the phrase "regularly organized and reputable colleges giving a course of not less than three years of six months each." The proviso which allows non-graduates from other states to come before the Minnesota Board is being cancelled. Provision is made for annual renewal of license, with a fee of \$1, the Board to have the power to revoke or to refuse renewal for cause. The date of meetings is being changed to avoid conflict with the State Association. No definite provision is being made for prosecuting illegal practitioners. The President and Secretary are given power to administer oaths and take evidence and the Board term is being changed from two years, all memberships expiring together, to a five-year term, one membership expiring each year.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

BISMUTH IN GASTRIC TYMPANY [*Paracelsus*].—A male fox terrier has valvular disease of the heart and of course ascites. He is also a voracious eater, and, as his diet is carelessly given to him, he is subject to digestive trouble. One day he is taken with a very severe attack of acute gastritis, which is relieved with small doses of sulphocarbolate of sodæ. Careful diet is severely recommended. After two days he is allowed a little more food, but he soon again gets sick, and this time his trouble is accompanied with great tympanites of the stomach. A mild laxative and mixture of caryophylli and tincture of belladonna and small doses of brandy bring him back to his normal condition in two or three hours. This did not last long, as on the next day, after a meal of solid food, he is again taken with the same gastric gaseous difficulty. It is then that the author decided to resort to some antiseptics mixed with the food. Subnitrate of bismuth in twenty-grain doses is given mixed with the food and continued every four hours for three days. The recovery was rapid and lasting, the dog had no more trouble until his death, which occurred some time after. Being overfed once too often, he had an attack, vomited and during the efforts of retching he suddenly fell down forwards and was picked up dead. At the post-mortem the heart was found diseased, the stomach dilated, with the walls thinner than usual; but with these exceptions all the other organs were found normal.—(*Veterinary Record*).

MOTOR ACCIDENTS IN LONDON.—The Home Secretary has forwarded to a member of Parliament the following return of motor accidents in the Metropolitan Police District during July and August, 1906: Return of the number of accidents to persons or property known to police to have been caused by (1) motor cars (including motor cycles), (2) motor omnibuses, (3) mechanically propelled tramcars, showing in how many instances personal injuries have resulted and in how many cases such injuries have proved fatal, within the Metropolitan Police District, during the months of July and August, 1906:

	July.	August.
Accidents caused by motor cars (including motor cycles)	539	328
Caused personal injury	178	134
Proved fatal	6	6
Accidents caused by motor omnibuses	381	436
Caused personal injury	74	75
Proved fatal.	1	5
Accidents caused by mechanically propelled tramcars.	286	317
Caused personal injury	105	121
Proved fatal	1	2

—(*Veterinary Record.*)

BILATERAL GRAVITATION ABSCESES [*M. R. C. V. S.*].—A fox terrier got in a fight with another dog and at first did not seem to be much hurt. He apparently had only a small wound on the back, which was covered with a little dry blood. Nothing was done for the dog, but a few days later he presented on each side of the thorax a little swelling, which had a tendency to increase. The author was called. On each side of the thorax, a little behind the forelegs, there was a round diffuse swelling, uniformly firm in consistency. At the wound of the back, a few drops of unhealthy looking pus could be squeezed out from a little fistulous tract, allowing the introduction of a small probe. The swellings were not painful and the general condition was good. Warm moist flannel applications were prescribed with hot fomentations, repeated several times a day. On the fourth day fluctuation was readily perceptible in both swellings. A free incision in each allowed the escape of a large amount of thick, dirty, semi-sanguineous pus. Ordinary surgical treatment brought about rapid complete recovery.—(*Veterinary Record.*)

ECHINOCOCCUS VETERINORUM CYSTS IN THE HORSE [*Henry B. Eve, M. R. C. V. S.*].—An aged gelding had influenza and after recovery was turned out in a marshy land to recuperate. He did not improve, was treated for chronic indigestion, but grew worse and finally was shown to the author, who observed the following symptoms: General dullness, loss of appetite, trembling of the muscles of the neck and left shoulder, slight swelling over the ribs on the left side, oedema of the four extremities. When standing still there was a venous pulse, which was more marked when the animal moved. Pulse weak, heart fluttering, no whistling sound at auscultation. Skin dry, hide-bound, temperature normal, great thirst and marked emaciation. There was a cough like that of a broken-winded horse. The urine was scanty, albuminous, and at times suppressed, when there were colics. Bowels were either constipated or very

loose. A diagnosis was made of pericarditis and chronic nephritis, probably tuberculous, with pulmonary emphysema as a complication. Prognosis unfavorable. After tuberculin test, which was negative, treatment was started of nutritious diet, milk, eggs, port wine, beef tea, cod liver oil, etc., but all without results. The animal died. At the post-mortem were found: lungs and liver studded all over with numerous hydatid cysts of the *Echinococcus veterinorum*. There was marked pulmonary emphysema of the lungs. The liver was considerably enlarged, the heart somewhat hypertrophied, and the kidneys the seat of chronic nephritis. There was also a large accumulation of fluid in the abdominal cavity.—(*Veterinary Record.*)

A FOREIGN BODY IN THE PHARYNX [*Faracelsus*].—Under all circumstances it is always difficult to examine a cat and especially to look at its throat. And when it is a question to handle a strong well-developed "entire" male it becomes a very hard job. In this case the author was fortunate enough to obtain a glance at the presence of a little something that looked like a bone, by introducing the case of a thermometer in the mouth of his patient and depressing the tongue, but when it came to the question of removing it, the chloroform bag had to be resorted to and finally the cause of the trouble was with much difficulty removed. It proved to be a rather large furculum or "wish bone" of either a chicken or some other bird. The bone had been swallowed with the hypocleidium first, but the two branches of the bone had been able to pass the pharynx and was lying across beyond the glottis. Once removed, the recovery was almost immediate and without eventful conditions.—(*Veterinary Record.*)

INVAGINATION OF THE CAPUT CÆCUM COLI IN A PONY [*Clement Elphick, M. R. C. V. S.*].—The subject has had colics, which have been temporarily relieved, and at last is getting alarmingly ill; and the author is called. The following symptoms are observed: Pulse quick and wiry, respirations increased, temperature normal, mucous membranes deeply injected, rectal examination difficult, as the pony makes strong expulsive efforts, bowels are empty and tympanitic, bladder distended, there are sudden attacks of pain, when the horse will drop and then strain violently. Then there are spells of quietness, when the animal seems free from pain and looks for food. Stoppage of the bowels is diagnosed, and treatment prescribed accordingly. After forty-eight hours, report was sent that he had a good passage of his bowels, and he seemed to be well. Careful diet was

recommended and the case discharged. The next day another call was received, but the animal died before the author arrived. At the post-mortem, he found that the "apex of the cæcum was invaginated into the body of the cæcum, the portion invaginated being strangulated and the bloodvessels very much enlarged and hardened. The invaginated portion measured nine inches and a half."—(*Veterinary Journal.*)

TWO CASES OF FIBROUS ANCHYLOSIS OF THE KNEE JOINT [*Captain H. A. Sullivan, Poona, India.*].—An English thoroughbred mare got severely injured in both knees, and after nine months these were so stiff that she could hardly bend them out of a straight line. At first it was thought to use her for breeding purposes only, but finally treatment seemed to offer some chances of success and she was operated. "To this end," says the writer, "I put her under chloroform, and by means of traction, obtained by passing a rope from the fetlock through a collar on the neck, I broke down the adhesions thoroughly in one knee, leaving the other for another time." The next day the knee was enormously enlarged and painful. It was well fomented and massaged twice a day with belladonna and glycerine, being careful to flex the knee to a certain extent each day. In the course of three weeks the joint could be flexed to an angle of 90° . She was then put down again and the other leg treated in a similar way. In two months and a half after she was put to training." The author has operated in the same way and with the same results upon another horse, but then it was only on one leg, the near knee, and the ankylosis existed for only three weeks.—(*Veterinary Journal.*)

TWO CASES OF FOREIGN BODIES IN CATTLE [*James G. Tait, M. R. C. V. S.*].—These two cases enrich the already large collection of the variety of foreign bodies that can be swallowed or found in cattle. The first was observed in a cow. At a first visit the author advised a drench of oil, but at a second call, the oil having given no relief and finding a peculiar obstruction in the oesophagus, he secured the animal and operated, succeeding in removing one iron heel of a laborer's large, heavy boot, with five nails jagged and projecting, with one penetrating the oesophagus. The animal made a good recovery. The second case was found in the stomach of a cow by rumenotomy. It was the hasp or catch of a door. Located in the rumen, it had given rise to the usual symptoms of indigestion; the presence of a foreign body was suspected; it proved correct by the operation.—(*Veterinary Journal.*)

OBSTRUCTION OF THE BOWELS AND DEATH DUE TO A SPONGE [*Henry B. Eve, M. R. C. V. S.*].—This is the history of an old mare, known as a gross feeder, which was taken one day with colic, requiring a very severe treatment. Physostigmine, pilocarpine, mustard applications, rectal injections of all kinds, eserine and strychnine were resorted to and finally relief was obtained, so that after a few days of rest and good hygienic treatment, the animal was returned to work. But after a week, the symptoms returned with possibly less severity. At this time, however, the treatment was not beneficial, and as the mare was very emaciated, the owner was advised to have her killed. At the post-mortem the stomach was found healthy, the intestines were congested, and in the ileum at its terminal end there was a small piece of sponge firmly wedged in and which had evidently been swallowed some time before.—(*Veterinary Journal.*)

NOTES ON THE PRESENCE OF SPIROCHÆTES IN AN INFECTIVE SARCOMA OF THE VAGINA OF A BITCH [*A. E. Mettam, Principal Royal Veterinary College of Ireland, Dublin.*].—A new growth having been removed from the vagina of a bitch, slides were made and examined. It was found the usual type of such growths, a round-celled sarcoma. Smears made and fixed and stained showed on examination numerous spirochætes. More particulars will follow.—(*Veterinary Journal.*)

INFECTED OPEN TENDON SHEATHS [*Prof. W. L. Williams, of the New York State Veterinary College.*].—The record of six cases of diseased sheaths of tendons, in which the radical treatment of free incision and careful antisepsy was resorted to. The first, a case of thoroughpin of several months' standing, became infected, but nevertheless recovered in due time. The second case was one of injury of the tendon sheath of the fetlock, in which the recovery was very rapid. In the third case it was an injury of the fetlock of one hind leg. Here, again, the recovery was rapid. The fourth had an extensive distension of the tarsal sheath. Thermocauterization, even deep, failed. Infection took place, and free incision with antiseptic dressings were followed by recovery. In the fifth case, one of fetlock injury, free incision and tincture of iodine dressing relieved him in a short time. The last case, also one of fetlock injury, was more tedious, but finally yielded to similar treatment. The author depends on the value of the radical operation, on the thorough disinfection of the entire traumatic surface, insists on the value of avoiding compression and friction between the inflamed sur-

faces, and calls attention to the fact that he did not resort to any recently-discovered disinfectants, but depended on iodine and sublimate.—(*Veterinary Journal.*)

A CASE OF FILARIA IN AN ENGLISH HORSE [*C. W. Townsend, M. R. C. V. S.*].—Eight-year-old Hackney which discharges a good deal from one eye. Cornea is clear, eye a little sensitive to light; a small round worm is seen swimming in the aqueous humor. In a month the eye is inflamed, cornea becoming opaque; aqueous humor assumes milky aspect; photophobia is well marked. After some two months this condition improved and gradually subsided; sight was lost; worm still apparent, but dead; opacity of the cornea passing off.—(*Veterinary Journal.*)

TETANUS IN A DOG [*A. C. Duncan, M. R. C. V. S.*].—A hound hunted on a Saturday; following Tuesday it seems strange, walks stiff, tail straight out, unable to eat. He is otherwise healthy, and tries to eat. Only a few scratches are found about his legs. Treatment: calomel, bromide of potassium and perfect quietness. He grew worse and was killed. Post-mortem negative.—(*Veterinary Journal.*)

AN INTERESTING SUCCESSION OF RECOVERIES FROM MILK FEVER IN A COW [*R. Waghorne, V. S.*].—The record of a pure-bred Jersey, aged 10 years, which had milk fever in 1904, 1905 and 1906. In 1904 it was her fifth calf, in 1905 she had twins, at her last attack she had a bull calf. Her recovery was perfect in every instance, and now she is giving 14 quarts of milk. She used to give 19½. The first time she was treated with iodide of potassium and aloes. The third time with insufflation of air in the udder.—(*Veterinary Journal.*)

FRENCH REVIEW.

By PROF. A. LIAUTARD, M. D., V. M.

AUTOMUTILATION IN A DOG SUFFERING WITH SUBACUTE MENINGO-ENCEPHALITIS [*L. Marchand, J. Basset and E. Pecard*].—This is an exceptional case, as, with the exception of rabies, it has not been observed in any other affection, in animals at least. In three weeks this dog has bitten off more than two-thirds of his left hind leg. It was a fox terrier, aged one year, which two weeks previous had shown a great liking for

licking the lower part of his leg where there was a little wound. He would also bite and tear all kind of dressings or bandages that were put on it; and now he does not rest his paw on the ground, the wound has considerably enlarged and at the bottom the phalangeal bones are seen unprotected. A dressing is applied, but the next morning it is found all torn and the lower extremity of the paw has disappeared, the leg is amputated as far as the metatarsals. The dog is quiet, continues to lick his wound and his appetite is still good. All of a sudden, he is taken with a rage, smells his wound, and as suggested by an irresistible feeling he takes hold of the stump of his leg and bites it with rage, growling, crushing, tearing and swallowing half of his metatarsal. He becomes quiet then for a while, but soon another attack returns and in a few moments his hock and the lower third of the leg are devoured. These manifestations were followed by two days of calm, with good appetite, normal mastication and deglutition, normal sight, normal sensibility. After that time, another attack took place during the night, and the leg destroyed as far up as the patella, leaving a large bleeding, irregular and anfractuous sore which the poor brute keeps licking. Notwithstanding all cares to this wound, the general condition of the animal could not stand the strain long, his condition broke down and death occurred in three weeks from the first manifestations. Post-mortem: Nothing peculiar at the opening of the cranium, only great quantity of cephalaorachidian fluid. Lateral ventricles much dilated. Brain thinned, with circumvolutions less marked. Meninges thickened and infiltrated. The histological examination reveals a subacute meningo-cephalitis, diffuse but particularly severe on a level with the cerebral fissures. The interpretation of these manifestations is given as follows by the authors: A meningo-encephalitis developed in the dog, when at the extremity of the leg came a little wound giving rise to itching. Out of his mind, the dog first licked, then bit the region, hoping to get relief but going beyond, because individuals suffering with those affections have a loss of sensibility to pain; they may feel the prick of a pin, but do not have pain. With this dog, the crisis of autophagism was due both to the disagreeable sensation from the wound and the diminution of the intelligence and hypoalgesia.—(*Recueil de Médecine Vétérinaire.*)

ENORMOUS HÆMATOMA NEAR THE GULF OF THE RIGHT JUGULAR VEIN IN A COW—LIGATION OF THE JUGULAR [P. Bitard].—An old cow, rather poor in condition, receives a blow

from the horn of another, and in a short time presents at the entrance of the chest, on the right side, an enormous swelling, warm, hard, and which is punctured in two or three places with a fleam by the owner. Quite an abundant escape of blood took place then, but the enlargement continued increasing and now it forms a large tumor, rounded, situated at the gulf of the jugular, more on the right side. It interferes much with locomotion. The history of the case and the presence of a marked depression, in which the index finger can readily enter, tell the nature of the injury and of the trouble ; it is an hæmatoma, due to an injury of the jugular. The author is not partisan to waiting for natural progress and possible absorption ; he prefers immediate interference. He proceeds in the free opening of the tumor, so as to empty the sac of the clots, and succeeds well until a certain time when, of a sudden, the blood started flowing freely from the injured bloodvessel. Immediately the jugular was cut down upon above the seat of the first injury, it is exposed, and a ligature applied upon it, arresting the flow, which threatened to end fatally. The cavity of the hæmatoma was then carefully cleaned, all the clots removed, and a compressive dressing made of perchloride of iron, oxygenated water and hydrophile wadding was applied, leaving but a very slight haemorrhage from the small vessels at the lower part of the cavity of the hæmatoma. The dressing was changed every two or three days and kept as antiseptic as possible, and little by little the cavity granulated and filled with cicatricial tissue with a gradual undisturbed recovery.—(*Progrès Vétérinaire.*)

NEW DIAGNOSTIC SYMPTOMS OF GASTRO-INTESTINAL LACERATIONS IN GENERAL AND OF THE GASTRIC AND RECTAL IN PARTICULAR [*M. Pecus*].—I. *Lacerations of the Stomach.*—For these, there is the vomiting and the efforts in connection with it, with also the odor *sui generis* at the nostrils. But this is sometimes missing, and there is a symptom which the author says is always present, namely, a peculiar special noise, a kind of howling similar to the one given by a stallion smelling a mare. An animal has colic ; while a drench is given to him, he gives that peculiar cry. At the post-mortem, the stomach is found lacerated. Another horse is also taken with abdominal pains, very severe colic, and while a drench of opium is given he kicks several times with his fore-legs and sends off the peculiar cry of the author. On rectal examination the hand has the peculiar soft sensation of the rubbing of the coats of the peritoneum against some strange body, and which indicate the

existence of a rupture in the digestive canal and the presence of foreign substances in the peritoneal cavity. This horse died and a rupture of the stomach found at the autopsy. 2. *Laceration of the rectum.*—Of course it can be easily diagnosed by manual examination, but through some circumstances it may not be detected. One symptom will rarely be wrong: it is the temptation of the suffering animal to push with his rump against the wall or in a corner of his box when he is not in too great pain and where he can rub himself as if suffering with vermin.—(*Journal of Zoötechny.*)

GERMAN REVIEW.

By J. P. O'LEARY, M. D. V., Bureau of Animal Industry, Buffalo, N. Y.

NEW MEDICINAL REMEDIES [*Dr. Zimmerman, Budapest.*].—By the name *Vasogen*, we understand that it is vaseline impregnated with oxygen, forming a hydro-carbon, which is its most important and effective ingredient. In the addition of oxygen this preparation acquires double properties; its absorptive action is increased and it can be more easily emulsified with water. At the ambulatory clinic of the Veterinary High School, Budapest, tests were made to ascertain the therapeutic value of Iodo-Iodoform-and Creolinvasogen. Iodovasogen 6 per cent. was smeared over neglected torpid proliferating wounds. After a few days the secretions diminished, pus disappeared and healthy granulations formed, followed by a complete cure. In contusions and sprains, massage with Iodovasogen gave gratifying results. This preparation leaves no scar upon the skin at the seat of application. It is also of benefit in the treatment of goitre in dogs. In the latter case, after clipping the hair the ointment is to be well rubbed in over the affected glands, for at least 5 minutes, once a day, together with the internal administration of 5 drops of the same preparation in the beginning, and later it may be increased from 10-15 drops for a dose on sugar, afterwards it may be given in milk, coffee; this is the most palatable vehicle and the animal takes it without forcible means. No ill effect was observed, as vomiting and diarrhoea; the enlarged glands diminished to normal size in from 10-14 days after this method of treatment. Iodoformvasogen contains 3 per cent. iodoform and possesses the advantage over other similar preparations—for example, iodoform glycerine—that in this

case the iodoform remains thoroughly suspended. At the same clinics, this preparation was used almost entirely in the treatment of abscesses, resulting from strangles infection and suppurating fistulous wounds, with good results; pus formation was checked and the fistulous tracts healed with beautiful granulations. In phlegmon, on the contrary, this remedy has little value.—(*Ber. Tier. Woch.*)

HÆMORRHAGE FROM THE UTERUS [*District Vet. Sigl.*].—A 16-year-old mare suffered from a more or less severe hæmorrhage for four months. On examination the blood seemed to flow in a thin stream from the inferior wall of the vagina, but on closer examination it was found that the blood issued in quite a fine stream from the uterus. The os uteri was dilated to the extent to admit the passage of three fingers. No lesions of the genital tract were perceptible. Treatment:—Rest; injections of a 1 per cent. lukewarm solution of alum once a day. After 10 days there was no improvement. He next substituted for the alum solution a 2 per cent. solution of liquor ferri sesquichloride, but with no better success, finally prescribing extractum hydrastis fluidum, 20 grams, twice daily. After a few days the hæmorrhage ceased.—(*Wochenschrift für Tierheilk. und Viehzucht.*)

CONSEQUENTIAL SYMPTOMS DUE TO THE RETENTION OF THE PLACENTA IN THE MARE [*Obertierarzt Dr. Bernhardt*].—B. describes two cases showing paralysis of the hind quarters as a result of the retention of the placenta. In one case the mare had aborted; the secundines had not been expelled. Shortly afterwards the mare showed symptoms of weakness in the hind quarters. In spite of the manual removal of the after-birth and flushing out the tract with disinfectants, the weakness increased until complete paralysis of the hind quarters had set in. Death followed in about 24 hours after the act of parturition. In the other case the mare had foaled at the end of the normal period of gestation and seemed to have expelled the afterbirth *in toto*. Two days later she went stiff in both hind legs. Temperature 39.2°C., pulse 60, respiration 18. The stiffness increased. A quantity of exudate was discharged from the vagina. The treatment consisted for the most part in flushing out the genital tract with disinfectants. After five days the mare had made a complete recovery. B. refers to the fact that in the text-books of Franck and Harns no mention is made of the above described series of conditions.—(*Zeitschrift für Gestütekunde, Heft 5.*)

BRONCHITIS IN THE HORSE WITH FATAL TERMINATION [*Veterinarian Jak. Wohlmatt, Vienna*].—W. describes the progress of this malady in three horses which were brought to the Vienna school for treatment. On examination the patients were found suffering from bronchitis, and notwithstanding the most careful treatment death ensued. The history of those three cases pointed to the fact that the animals showed inappetence for some time previous. The examination also revealed the presence of an intense hyperthermia, which in spite of the continuous application of ice poultices could not be lowered. Extensive dry râles were audible over both lungs, which did not give way to the clear and loud percussion sound, indicating convalescence. There was an increased purulent nasal discharge and finally dyspnoea which almost bordered upon suffocation. At the autopsy he found in the first case only a mucopurulent bronchitis; in the second case, lobular pneumonic foci in both lungs about the size of a hazel nut, in the stage of gray hepatization; in the third case, a chronic indurating pneumonia, double fibrinous pleuritis and numerous large caverns filled with purulent contents, besides the appearances of parenchymatous degeneration in all the large visceral organs.—(*Tierärztliche Centralblatt, 1904, No. 4.*)

"REVIEW" READERS are urged to send in for publication personal items concerning themselves or their veterinary friends which are of interest to the profession. There is no reason why the "news" of the profession should not be disseminated, so that the members may be kept *au courant* with the doings of their brethren.

THE DANGERS OF CAT DIPHTHERIA.—As illustrative of the grave danger of cats suffering from diphtheria transmitting the disease to other felines and to human beings who fondle the sick pet, the story was published in the New York papers on March 1 of a stray cat, befriended by little Annie, daughter of H. A. Yale, Patchogue, L. I., that returned evil for good by causing the death of its benefactress. The child, who frequently caressed the cat, soon contracted diphtheria, and the germ has been traced to the cat. The account states that this is the second occasion on which a cat has spread death in Patchogue. A Mrs. Gordon and her four children, some four years ago, died under similar circumstances. Then it was definitely known that the cat was responsible; and it was examined after the deaths and found to be suffering from black diphtheria.

ARMY VETERINARY DEPARTMENT.

PATENT STOCK FOODS.

Fort Snelling, Minn., Feb. 15, 1907.—During the month of December the Iowa State Legislature began to look into the affairs of patent stock-food manufacturers, exposing the frauds which had been perpetrated on the public for some time. The results of this investigation at present, I know not, but on the same lines the Minnesota people are hot after concerns in this state; good results will follow here, as Minnesota knows just how to do such things.

During May, last year, the Quartermaster's Department of the Army was induced to try and make a test of a certain stock food (*The American*); sacks containing 100 pounds were sent to different Posts for use among the horses.

I was fortunate enough to be allowed to conduct one of these tests on a number of our horses, not in very good condition of flesh at the time. The material was fed in regular grain ration twice daily, as directed, to 44 animals, for a period of one month, and at the end of this time a report was ordered to be made. This was our opportunity to reveal the utter uselessness of a food of this character. Fed in the quantities directed, it had absolutely no virtue. The material was designed to take the place of straight grain ration, supplanting same, being in concentrated form, thereby saving money to the Government in oats and corn. My report went in on June 18th, 1906, and since then have heard nothing further. Only trust that other veterinarians found the same results.

L. E. WILLYOUNG.

* * *

RABIES IN MINNESOTA.

Fort Snelling, Minn., Feb. 15.—For the past few weeks rabies has been apparent in and around the Twin Cities. Fort Snelling is situated about midway between the cities, and with the usual admiration and affection that the ordinary soldier has for a dog, we were some of the first to be visited by affected animals. To the present date three enlisted men have been sent to the Pasteur Institute at Chicago for treatment, having been bitten by (positively) rabid dogs. Loose unmuzzled and stray dogs are rapidly being decimated in both St. Paul and Minneapolis at the present time, as press reports show, and hopes are

entertained of checking the further spread of this condition in
the near future.

L. E. WILLYOUNG.

* * *

GAINS FOR THE VETERINARIAN.

The 59th Congress has made one concession to the veterinarians of the Army, as follows: "Army Appropriations Bills Passed—For additional ten per centum increase in pay of commissioned officers serving beyond the limits of the States." The word *commissioned* (being in italics) is stricken out. The Army Veterinarian is an assimilated officer, hence they will hereafter receive foreign service pay, an increase of ten per cent.

In further connection the value of veterinary literature also seems to be recognized by our Government, as will be noted by the House resolution ordering a 250,000 edition of "The Diseases of the Horse." It is questionable if all recipients of this publication will fully appreciate its value.

Safe to assume the profession during 1906 and so far during 1907 have not retrograded in public view. L. E. WILLYOUNG.

* * *

ARMY PERSONALS.

DR. DANIEL LE MAY, Veterinarian Artillery Corps, has been transferred from Fort Ethan Allen, Vt., to Vancouver Barracks, Washington.

* * *

MALLEIN TO BE USED AS A PREVENTIVE.

The following order of the Secretary of War has been issued:

"CIRCULAR No. 9.—*War Department, Washington, Feb. 12, 1907.*—The mallein treatment, as a preventive against generalized incipient glanders, will be administered quarterly in the United States, and oftener in tropical countries, to all horses and mules belonging to the Army. Commanding officers are authorized, in their discretion, to extend or to reduce the interval between each treatment as the condition of the animals may indicate. [Signed] J. Franklin Bell, Major General, Chief of Staff."

THE recent serious floods in the Platte River at Columbus, Nebraska, destroyed all the live stock in the Union Stock Yards on Feb. 13. Dan McCrone, a veterinary surgeon, his wife, daughter and a Miss Ball were also drowned, their bodies being recovered the next day.

CORRESPONDENCE.

LEGISLATIVE PROGRESS IN MONTANA.

HELENA, MONT., March 13, 1907.

Editors American Veterinary Review:

DEAR SIRS:—I am mailing you under separate cover copies of H. B. 148, 182, 200 and 324, passed by our recent Legislature and approved by the Governor. House Bill 148 is a very complete "Vital Statistics" measure that has received universal endorsement. H. B. 182 you will note is a "State Board of Health" measure, making the State Veterinary Surgeon a member of such Board, which is another recognition Montana has afforded the veterinary profession. H. B. 200 amends our sheep inspection law of 1905, curing its defects. H. B. 324 I believe is a very competent livestock sanitary law. There is hardly any doubt but that this law cures all the defects in our old livestock sanitary law and gives us effective working timber. I wish you would read 324 carefully and criticise it unmercifully.

The past Legislature raised the salary of the State Veterinarian to three thousand dollars per year, so I feel that the veterinary profession has been fairly well recognized by Montana's tenth legislative assembly.

We introduced also a Veterinary Practice Bill, H. B. 54, which was unfortunately "killed"; but I desire to call your attention to section 4, which is a reciprocity clause that should be in the practice bill of every state in the union.

We will try to do better next time. Very truly yours,
M. E. KNOWLES.

TREATMENT OF FISTULOUS WITHERS.

AUBURN, ALA., Feb. 15, 1907.

Editors American Veterinary Review:

DEAR SIRS:—Last year some veterinarian in Omaha or near there recommended the use of mercuric iodide by smearing the ointment over the inside of the abscess cavities or pus pockets. I tried this until I found it quite impossible to get enough or to retain sufficient of the iodide ointment in the cavities to do any good. Then I decided to smear the red iodide ointment (1 to 5 or 6) over a piece of bandage and pack the cavity full with the smeared bandage. This packing is left in the cavity

48 to 72 hours. In 4 to 6 days another is inserted; and thereafter the cavity is thus packed once every 10 days. Of course all the surgical work should be done in the way of opening cavities, dissecting out necrotic tissue and new growth of connective tissue, or excessive granulation tissue, before the packing is used. Very rarely should the cavities be washed out or flooded with antiseptic solutions. The washing should be confined to the skin surface, to keep it clean around and below the opening. I have used the same packing in poll-evil; in abscess cavities (cold abscesses) at shoulder point; in infected scrotum following castration, and in abscess cavities of strangles. In my experience, it will eliminate the infection of abscess cavities more effectually and rapidly than any other treatment that I have used. I have found the constant washing treatment a farce.

C. A. CARY, B. S., D. V. M.

ALMOST three hundred sat at the banquet of the students and faculty of the Chicago Veterinary College last month.

HORSE MEAT INCREASING AS FOOD.—*Paris, March 2.*—According to official statistics forty thousand horses were eaten in Paris last year. This represents about eleven million kilograms of horse flesh, as compared with the earlier figures of 1899, when a total of only five millions was eaten. This branch of the butcher business in Paris seems to be growing rapidly in favor, so that the horse butcher is assuming the position of quite a respectable competitor with the beef butcher. Horse butchers' signs, with a gilded horse head above the door, are numerous in certain quarters of the city, and horse butchers are rapidly preempting spaces in the market halls. This is particularly the case in well-to-do sections, and the fact almost prompts the suggestion that the doctors are in league with the horse butchers. Doctors are more and more recommending for certain patients who are in need of building up their shattered systems a diet of horse flesh, and for persons whose constitutions are thoroughly run down with weakened stomachs they prescribe the juice of horse flesh, prepared under certain simple conditions, instead of the flesh itself. At the markets during the early morning hours each day men and women stand in line awaiting their turn to be served by the horse butcher. They call for a nice steak or filet, and, being well versed on the matter of quality, are very particular in their selections. Some butchers make a specialty of mule meat, which contains more fatty matter than horse meat.—(*New York Herald.*)

VETERINARY PROGRESS IN ALABAMA.

LETTER OF TRANSMISSION.

AUBURN, ALA., March 11, 1907.

Editors American Veterinary Review:

DEAR SIRS:—I send you under separate cover a copy of a state live-stock sanitary bill just enacted by the Alabama Legislature, thinking that the REVIEW would be interested in a triumph for veterinary medicine in the South. This measure is the culmination of years of untiring effort on the part of Dr. C. A. Cary, to whom all the credit and much praise are due for framing the act and successfully piloting it through the Legislature. Alabama is to be congratulated upon having, at last, a live-stock law, and, moreover, one that is pronounced by experts on sanitary law and by those highest in authority in the veterinary profession, the most efficient measure of its kind in the States. At least one of the "quarantined states" can coöperate with the Federal government, and has hopes of seeing the finish of the *Boophilus annulatus*, besides having at its command a means of controlling infectious diseases.

Trusting that you may deem this bill worthy of the consideration of the REVIEW readers, I am

Yours respectfully,

WARD GILTNER, D. V. M.

* * *

BILL PASSED MARCH 6, 1907,

ENTITLED AN ACT, to establish a State Livestock Sanitary Board and the office of State Veterinarian in order to further protect livestock from contagious and infectious diseases and provide for eradicating and excluding such diseases from Alabama.

Sec. 1. Be it enacted by the Legislature of Alabama, That from and after the passage of this act, the commissioner of agriculture and industries of the State of Alabama, the State health officer of Alabama, the professor of animal industry and the professor of veterinary science, of the Alabama Polytechnic Institute, shall, ex-officio, constitute a board to be known as the State Livestock Sanitary Board. The commissioner of agricul-

ture and industries shall be chairman and the veterinarian on the board shall act as secretary of the board. The State Livestock Sanitary Board shall have full power to make or enact such rules and regulations as they may deem necessary for governing the movement, transportation, or disposition of livestock that may be quarantined as hereinafter provided, on account of being affected with, or exposed to, a contagious or communicable disease, or on account of being infected or infested with the carrier or the carriers of the cause or the causes of a contagious, infectious or communicable disease of livestock.

Sec. 2. Be it further enacted, That the professor of veterinary science of the Alabama Polytechnic Institute, shall act as State veterinarian of Alabama. The State veterinarian shall nominate, and the State Livestock Sanitary Board shall elect, as many assistant State veterinarians and State livestock inspectors as they may deem necessary and as the funds at their disposal shall permit.

Sec. 3. Be it further enacted, That the State veterinarian is authorized and directed to quarantine a stall, lot, yard, barn, pasture, field, farm, town, city, township, county, or any part of the State of Alabama when he shall determine the fact that livestock in such place or places are affected with a contagious, infectious, or communicable disease, or when said livestock are infested or infected with the carrier or the carriers of a contagious, infectious or communicable disease. The State veterinarian or an assistant State veterinarian shall give written or printed notices of the establishment of said quarantine to the owners or keepers of said livestock and to the proper officers of railroad, steamboat, or other transportation companies doing business in or through the quarantined part or parts of the State.

Sec. 4. Be it further enacted, That no railroad company, or the owners or masters of any steam or other vessel or boat shall receive for transportation or shall transport livestock from any quarantined part into any other part of Alabama except as hereinafter provided. No person, corporation or company shall deliver livestock for transportation to any railroad company or sailing or steam vessel or boat in a quarantined part of Alabama, except as hereinafter provided. No person, company or corporation shall drive or cause to be driven, livestock on foot, or transport livestock in a private conveyance, or cause livestock to be transported in a private conveyance from a quarantined

part to a non-quarantined part of Alabama, except as hereinafter provided.

Sec. 5. Be it further enacted, That livestock may be moved within the limits of a quarantined part or from a quarantined part of Alabama only under and in compliance with, the rules and regulations of the State Livestock Sanitary Board. It shall be unlawful to move or to allow to be moved, any livestock from one place to another within the limits of a quarantined part or from a quarantined part to a non-quarantined part of Alabama, in any other manner or method, or under any conditions other than those prescribed by the rules and regulations of the State Livestock Sanitary Board.

Sec. 6. Be it further enacted, That all livestock, except such livestock as are to be used for immediate slaughter, when brought into Alabama by a person, company, corporation, railroad or other transportation companies, shall be accompanied by a certificate of health, and said certificate shall state that said animal or animals are free of contagious, infectious or communicable disease and the carrier or carriers of the cause or the causes of such diseases. This certificate must be made by a qualified veterinarian immediately after he has personally examined the livestock and before the livestock has been shipped into Alabama. This certificate shall be attached to, and accompany, the shipping bill of the livestock to the place to which the livestock is shipped, and the owner of the livestock or agent of the transportation company shall mail or send said certificate to the State veterinarian, immediately following the arrival of the livestock at its place of destination. The State veterinarian shall furnish qualified veterinarians and transportation companies with blank health certificates at actual cost.

Sec. 7. Be it further enacted, That owners, renters, or parties in possession or quarantined livestock or quarantined places shall follow the directions in the rules and regulations of the State Livestock Sanitary Board in cleaning and disinfecting infected livestock and infested and infected quarantined places, and in destroying the carriers of the cause of a contagious, infectious or communicable disease, that infest or infect livestock and quarantined places. Said cleaning of said livestock, and the disinfecting of said places and destroying of said carriers, shall be done by the owners, or the parties in possession of the infected livestock and places, in a reasonable time after receiving a written or printed notice from the State veterinarian, an assistant State veterinarian, or a State livestock inspector.

Any person, company or corporation violating the provisions of this section shall be guilty of a misdemeanor and on conviction shall be punished for each and every violation by a fine of not less than ten dollars, nor more than one hundred dollars, or by imprisonment not less than ten days nor more than sixty days, or by both such fine and imprisonment.

Sec. 8. Be it further enacted, That the State veterinarian, the assistant State veterinarian and the State livestock inspectors are hereby empowered to enter upon the premises or into any barns or other buildings where livestock are temporarily or permanently kept in the State of Alabama in the discharge of the duties prescribed in this act. Any person or persons who forcibly assault, resist, oppose, prevent, impede, or interfere with the State veterinarian, an assistant State veterinarian, or a State livestock inspector in the execution of his or their duties, or on account of the execution of his or their duties, on conviction, shall be punished as provided in section 11 of this act.

Sec. 9. Be it further enacted, That the work of cattle tick eradication or the suppression or eradication of any other infectious, contagious or communicable disease of livestock shall be taken up under the provisions of this act in any county or any part of a county or any part of the State of Alabama, when the State Livestock Sanitary Board may deem it best. The county commissioners of any county in which the State or Federal authorities take up the work of tick eradication or the suppression of any infectious, contagious or communicable disease of livestock, may appropriate, for aiding in such work, such sum as the county commissioners may deem adequate and necessary.

Sec. 10. Be it further enacted, That the State Livestock Sanitary Board may appoint or elect the federal veterinarians and livestock inspectors, who are doing work in Alabama, as assistant State veterinarians and State livestock inspectors; provided, they consent to act without pay from the State of Alabama.

Sec. 11. Be it further enacted, That any person, persons, company or corporation violating the provisions of sections 4, 5, 6, or 8 of this act, shall be guilty of a misdemeanor and on conviction, shall be punished by a fine of not less than fifty dollars, nor more than five hundred dollars, or by imprisonment of not less than one month, nor more than six months, or by both fine and imprisonment.

Sec. 12. Be it further enacted, That there is hereby appro-

priated annually the sum of five thousand dollars to be disbursed under the direction of the State Livestock Sanitary Board to pay the actual expenses of the Livestock Sanitary Board in attending meetings; to pay for the printing of the official blanks, the annual reports of the State veterinarian and the rules and regulations of the Livestock Sanitary Board to pay the State veterinarian five hundred dollars per year and expenses while on actual duty, each assistant State veterinarian five dollars per day and expenses while on actual duty, and each State livestock inspector one to three dollars per day and expenses while on actual duty; and to pay such other expenses as may be necessary in carrying out the provisions of this act.

Sec. 13. Be it further enacted, That the judges of the circuit and criminal courts shall give this act in special charge to each future grand jury impaneled on this State, and that each such grand jury shall be clothed with, and authorized to, exercise inquisitorial power for the carrying out and the enforcement of this act.

Sec. 14. Be it further enacted, that the State veterinarian shall make an annual report to the governor of Alabama, giving a full account of the work done and a detailed report of the money expended.

Sec. 15. Be it further enacted, That all acts not in accord with this act are hereby repealed.

AMERICAN HORSES IN CANADA.

The Quarantine Regulations of the Health of Animals Branch of the Canadian Department of Agriculture for 1907 shows that the lines have been considerably tightened as regards the entrance of animals from the United States, particularly horses.

The Farmer's Advocate, published at Winnipeg, says: "Owing to the conditions under which animals are kept on the Western ranges, it is exceedingly difficult to maintain anything like a complete and satisfactory supervision of health conditions, with the result that in some of the Western States diseases such as glanders, maladie du coit, and mange prevail to such an extent that a very large number of the outbreaks which are taking place in Canada can be traced directly to importations of American horses. For several years the Health of Animals Branch of the

Department of Agriculture has been endeavoring to enforce a close and systematic inspection of imported animals and insisting upon the production by importers of a satisfactory health certificate, signed by an official American veterinarian. These measures have, however, proved entirely inadequate, as is shown by the fact that in the Northwest Territories and Manitoba since March 1, 1905, three hundred and forty-seven horses have been slaughtered for glanders, which has been traced directly to American importations, these latter being also undoubtedly responsible for the appearance of maladie du coit in Canada, the history of the animals in many cases showing that they were suffering from the disease in a latent form at the time of crossing the boundary. Mange has also been introduced in this way, there being no doubt that the existence of the disease in the Canadian West is entirely due to importations from the range states."

Under the revised regulations unbroken horses are prohibited from entrance into Canada, thereby making a careful examination by its inspectors possible. In the case of animals imported for commercial purposes the following provisions apply:

Sec. 33:—Horses, mules or asses, other than those comprising part of settlers' effects shall be inspected and must be accompanied by:

(a) A satisfactory certificate of mallein test dated not more than thirty days prior to the date of entry, and signed by an inspector of the United States Bureau of Animal Industry; or

(b) A similar certificate from a reputable veterinarian, provided such certificate is endorsed by an inspector of the said Bureau of Animal Industry; or

(c) A similar certificate from an inspector of the Canadian Department of Agriculture.

Section No. 34:—When not so accompanied, such horses, mules or asses must be submitted to the mallein test, either at the quarantine station where entry is made, or under certain restrictions, at point of destination.

Section No. 35:—When tested at the port of entry, if any reactors be found they shall be slaughtered without compensation, or definitely marked and returned to the United States, and must not again be presented for entry. All horses, mules or asses in the same consignment shall be returned to the United States, but the non-reactors may again be presented for entry and further test after the lapse of a period of not less than

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fifteen days after the first test, provided that satisfactory evidence is produced to the effect that they have not during the said period been in contact with affected animals. When tested at destination points, all animals reacting to the test will be slaughtered without compensation, while those comprising the rest of the shipment will be detained in quarantine until it is shown to the satisfaction of the Veterinary Director General that they are free from disease.

NUMBER AND VALUE OF FARM ANIMALS.

The Crop Reporting Board of the Bureau of Statistics of the Department of Agriculture finds, from the reports of the correspondents and agents of the Bureau, that the numbers and values of farm animals on farms and ranges in the United States on January 1, 1907, were as follows:

Farm Animals.	Number.	Per cent. compared with January 1, 1906.	Average price per head.	Value.
Horses	19,747,000	100.9	\$93.51	\$1,846,578,000
Mules	3,817,000	102.5	112.16	428,064,000
Milch cows	20,968,000	102.4	31.00	645,497,000
Other cattle	51,566,000	98.0	17.10	881,557,000
Sheep	53,240,000	103.0	3.84	204,210,000
Swine	54,794,000	99.5	7.62	417,791,000

The numbers of farm animals, as stated in the above table, represent, as nearly as ascertainable without an enumeration, the actual number of each specified class on farms and ranges on January 1, 1907. The figures are the results of a very careful investigation by the agents and correspondents of the Bureau, who used all available means to secure accurate information; but such results are not strictly comparable with similar data published heretofore, as the reports of agents were made without exclusive reference to the relation they may bear to figures of previous years.

A careful investigation of market movements, census, agricultural, and assessors' reports of various states, and other data, has indicated that the numbers of farm animals reported for several years have been too small. In order to bring the figures

near the actual facts, the Board has made certain adjustments and revisions in the report of January 1, 1906, and the percentages of increase or decrease on January 1, 1907, as compared with the preceding year, have been applied to the revised figures.

C. C. CLARK, *Acting Chief of Bureau.*

Approved : JAMES WILSON, *Secretary of Agriculture.*

AT the clinic of the New York State Veterinary College recently, the operation of resection of the flexor pedis perforans tendon for infected nail prick revealed the navicular bone in such an advanced state of necrosis that Dr. Williams removed the bone entirely. The latest report is, that the horse, while lame, is bearing considerable weight upon the leg ; and recovery to the point of usefulness is confidently expected.

MEAT INSPECTORS FOR CANADA.—By arrangement with Veterinary Director-General Rutherford, of Canada, the Chicago Veterinary College gave a special course in meat inspection, beginning March 4th and ending April 6th, thus covering a period of five weeks, and comprising special lectures and the microscopical examination of healthy and diseased tissues, as also practical instruction and demonstrations in company with and under the supervision of the inspectors of the U. S. Bureau of Animal Industry stationed in the various abattoirs and packing plants of Chicago. The tuition fee for the course is \$45. It is the intention of the Canadian authorities to hold a series of examinations at various points in the Dominion shortly after the termination of the course, the passing of such examination being obligatory under the new meat inspection law. The holding of a certificate indicating that the examination has been successfully passed at the end of this course may obviate further examination for service under the Inspection Act. Candidates who attend this course and successfully pass the examination, declaring their willingness to enter the service of the Department as meat inspectors, will receive a bonus of \$100. The Director-General makes it clear that the Department does not guarantee appointments to a greater number than are actually required to carry out the provisions of the Act. It is expected that appointments will be available for about thirty-five qualified inspectors. The salary on entering the service will range from \$1,000 to \$1,200, together with actual and necessary expenses incurred when absent on official duty from place of residence.

DR. GRIBBLE WAS A POET IN YOUTH.

LOS ANGELES, CAL., Feb. 15, 1907.

Editors American Veterinary Review:

DEAR SIRS:—Enclosed find a song written by W. H. Gribble when he was a Junior in Columbia College in '83. I ran across it among a lot of souvenirs of days that will never return. All of the readers of the REVIEW know to what extent Gribble can write prose, but few probably ever suspected he could be a poet or song writer.

He evidently had a bad case of it, and, while I have not seen him in twenty-four years, I have no doubt that he and "Rosa Jane" have been doing first-rate.

If you will reprint this poem in the REVIEW I know it will be a happy reminder to quite a bunch, including W. H. Lowe, Ramacciotti, Cooper Curtice, and many other more or less well-known veterinarians who were at College that winter. But, whatever you do, do not lose this copy, for I prize it very highly.

Yours very truly,

R. T. WHITTLESEY.

* * *

C. V. C. & S. C. M.

SONG.

By WM. HENRY GRIBBLE, OF JUNIOR CLASS.

(AIR:—*Little Rosa Nell.*)

Our College is, we know full well,
The first that's in the land,
And add to this, Professors, too,
That up before us stand.
COLUMBIA's graduates will be
Soon on the road to fame,
While I shall take the road for home
To see my Rosa Jane.

CHORUS:
But now I'd give the world to be
With Rosa Jane so true,
I die a death with every breath
I draw when far from you.

Let BATES still quiz on Chloroform
And praise Gaultheria high,
While SATTERTHWAITE, with phthisis
lungs,
Makes death to seem quite nigh.
My Heart, and Nerves, and Lungs I
know,
Are subject to my Brain;
Yet still I fear I ne'er again
Shall meet my Rosa Jane.

CHORUS.

Let PORTER talk of Leucocytes
And Inflammation sore,
And STICKLER slay from day to day
Of canines half a score.
While GUNNING with his manakin
Describes each Pelvic plane ;
My form is here, my thoughts are
there,
Where dwells my Rosa Jane.

CHORUS.

I'll think of LAUDY's Oxygen,
And Acids strive to learn,
While MITCHELL's Evolution plan,
My brain has nearly turned ;
But when to something I change,
And leave this world of fame,
I'll take with me, if she will go,
My darling Rosa Jane.

CHORUS.

Professor BURNS, with keen-edged
knife,
Can cut with steady hand,
While WALTON entertains the class
With his quotations grand.
But ready knife, and brilliant phrase,
Bring naught to me but pain,
When I am far from home,
Away from Rosa Jane.

CHORUS.

While RAMSDELL with his Pleurisy,
His Lenses and Lodestone,
MCLELLAN with his Springs and Shoes,
Stops Hoof from crowding Bone,
And DANA with his Catgut thread,
Ligates each Jugular vein,
My thoughts still turn in dreamy muse,
To my sweet Rosa Jane.

CHORUS.

Let FREY still prate and vindicate,
His Dover's mixtures strong,
And HEATH extol his Glauber salts
In praises loud and long.
While MOORE, the Ophthalmologist,
Our eyes he tries to train,
My pulse will thrill, my nerves impart,
My love for Rosa Jane.

CHORUS.

But ROBINSON and NEWSCHAFFER,
Came near to slip my mind,
And students CURTICE, KOEMPEL,
SLEE,
Who quiz when they have time,
But when with Sheep skin in my hand,
I leave COLUMBIA's fame,
I'll spend less nights with feeble lights,
And marry Rosa Jane.

CHORUS.

ELEGY ON DEATH OF A MAD DOG.

(This famous poem by Oliver Goldsmith is worth reading to-day.)

Good people all, of every sort,
Give ear unto my song;
And if you find it wondrous short—
It cannot hold you long.

In Islington there was a man,
Of whom the world might say,
That still a godly race he ran—
Whene'er he went to pray.

A kind of gentle heart he had,
To comfort friends and foes;
The naked every day he clad—
When he put on his clothes.

And in that town a dog was found,
As many dogs there be,
Both mongrel, puppy, whelp and hound,
And curs of low degree.

This dog and man at first were friends;
But when a pique began,
The dog, to gain some private ends,
Went mad and bit the man.

Around from all the neighb'ring streets
The wondering neighbors ran,
And swore the dog had lost his wits,
To bite so good a man.

The wound it seemed both sore and sad
To every Christian eye;
And while they swore the dog was mad
They swore the man would die.

But soon a wonder came to light,
That showed the rogues they lied;
The man recovered of the bite,
The dog it was that died.

THERE are 350 students at the Kansas City Veterinary College this session. What's the limit?

STOCK FOODS IN THE LIMELIGHT.—A Bill has been introduced in the Minnesota Legislature requiring a statement to accompany all stock foods offered for sale giving the number of net pounds contained in the package, and the percentage of crude protein, allowing 1 per cent. of nitrogen to equal $6\frac{1}{4}$ per cent. of protein and of crude fat, both constituents to be determined by methods prescribed by the director of the State Experiment Farm. The name of the manufacturer and other data are to be also given. The Dairy and Food Commission is charged with the enforcement of the law and the collection of samples. The chemist of the State Experiment Station will make analyses of samples.

IS A HORSE STABLE A NUISANCE?—A bill has been introduced in the Minnesota Legislature prohibiting the location of livery, feed and sale stables in any block of the platted portion of a city where more than one-half of the property is occupied for residence or hotel purposes without obtaining the written consent of all persons owning real property within 150 feet of such location. The bill does not relate to stables now erected and in active use. The bill further provides that the location or erection of such stables may be enjoined in a suit by any person owning property within 150 feet of the location either with or without a showing of special damage to his property.

SOCIETY MEETINGS.

IOWA VETERINARY ASSOCIATION.

The nineteenth annual meeting was called to order in the Chamberlain, Des Moines, Jan. 28, at 8.30 P. M., by President McNeil, who made an address dealing with timely topics.

Minutes of last regular meeting as published in the AMERICAN VETERINARY REVIEW were accepted. The Secretary's report was read and adopted. The Treasurer's report was read, and the Auditing Committee, composed of Geo. M. Walrod, W. A. Heck and S. K. Hazelet, appointed to audit same. They reported favorably, the report was adopted and the committee discharged.

TREASURER'S REPORT.

<i>Receipts.</i>	<i>Disbursements.</i>
To cash on hand, Jan. 9, '06 \$34.30	By Cash, F. W. Meyers, postage \$21.00
" " Dues 1-7-06 to 1-7-07 inclu- sive 130.00	Bulletin Pub. Co. . . . 25.50 W. C. Rollins Pub. Co. 4.00 H. Pester, stenographer 4.50 Hal C. Simpson, salary 50.00
" " Membership fees 1-7-06 to 1-7-07 16.00	Review Pub. Co . . . 23.00 Whitehead & Hoag Co. 13.25 Badges and Express. 1.00
	Johnson & Co. Supplies 1.00
	Cash in Treasury . . . 38.05
\$180.30	\$180.30

Dr. M. Jacob, Knoxville, Tenn., tendered his resignation, which was accepted, and Dr. Jacob was elected to associate membership.

Dr. G. A. Kay, Nebraska City, Nebraska, tendered his resignation, which was accepted, and Dr. Kay was elected to associate membership.

Dr. Hal C. Simpson reported cases. Dr. W. A. Stuhr suggested cryptogamic poisoning. Dr. W. A. Heck reported similar conditions. Bacteriological examinations by Dr. Albert, of the State University, were negative.

Dr. C. Miller, inspector in charge at Agar Packing Co.'s plant, invited the Association to come to the packing house and view some specimens of tuberculosis in cattle and hogs.

Meeting adjourned to meet at 9 o'clock to-morrow morning.

SECOND DAY—JANUARY 29, 1907.

Meeting called to order by President McNeil.

Dr. S. T. Miller, of Council Bluffs, delivered a talk regard-

ing his duties as milk, meat and fruit inspector of his city. Council Bluffs tried appointing a butcher to this important position, but this was very unsatisfactory on account of petty jealousy. He receives \$75 per month out of the city treasury. At first a charge was made on each shop, but this was unsatisfactory, and on account of the improved conditions the city now makes appropriations to pay his salary. He has police powers and privileges. At the beginning of his service the sanitary conditions were terrible, but by constant watchfulness a great many of the shops have improved by putting in cement floors and walls, so that they can be washed freely. He had no trouble with owners, as all realized that conditions were very bad. Oil is poured on everything that is condemned.

Dr. A. J. Treman reported two cases, "Dentigerous Cyst," and "Hernia of Mesentery into Flank."

Dr. D. O. Knisely, of Topeka, Kans., read his paper on "Acute Indigestion of the Horse."

Dr. A. Aageson was called upon to report his experience with "Lumpy-jaw." The Secretary read the report, and it was discussed by a number. Aageson insists that differentiation between pus from true actinomycosis and the abscess caused by bruises is the odor; the true actinomycotic pus does not have the odor, while pus from a bruise does have.

The report of the Committee on Sanitation was read by Dr. L. M. Hurt, chairman. After discussing the report the meeting adjourned to meet at 1 o'clock.

AFTERNOON—JANUARY 29, 1907.

Meeting called to order at 1.15.

Dr. S. K. Hazelet read his report of a case of "Rupture of the Diaphragm."

Dr. S. H. Kingery reported a case of "Canker of Foot." Cankerous condition covered all of foot, sole and wall. Owner had treated for a year. Had horse brought in and put on operating table, where all diseased tissues were removed, the parts cauterized and tar bandages applied. This was followed by nearly all kinds of treatment, with no signs of improvement. The horse was turned out and let run for several months. It was finally brought in again, and the diseased parts cut away as before. Formalin was applied. Excruciating pain followed and a clay bandage applied. This was repeated every four days for four times. Then a fistulous tract leading to the os pedis was discovered. This was curetted and packed with gauze. After recovery from this fistulous tract the horse was

shod, the wall being cut away between nails for bandages, which was repacked with clay. Animal finally recovered, but foot shrank away and became more upright. He knew of the horse for nearly two years afterward, and it was all right. The second case was somewhat similar; used formalin and clay packing, and in 90 days this horse went to market.

Dr. R. R. Dykstra read the report of the Committee on Diseases.

Dr. A. L. Wood read his report of "Abdominal Operations on Dogs."

Dr. F. R. Ahlers read his report of "Sudden Death in a Mare Following Parturition."

Meeting adjourned at 3.30 to go to Agar Packing Co. to view pathological specimens.

THIRD DAY—JANUARY 30, 1907.

Meeting called to order at 7.30 P. M.

Dr. L. U. Shipley read his report of "Cryptorchid Castration," which caused considerable discussion as to the advantages, *pro* and *con*, of packing after operating. Some very good arguments were brought forward, but a majority of those who expressed themselves favored the packing of those cases that needed it.

Dr. J. W. Scott reported a case of "Impaction." This subject brought out considerable discussion, also that rather repeated physics of oil or aloes should be given. A majority seemed to think that it was not advisable.

Dr. W. A. Stuhr read his paper on "Immune Sera."

Dr. D. H. Miller reported a case of "Urethral Calculi of a Dog."

The Legislative Committee made its report, which was accepted.

The Committee on Resolutions reported, which was accepted, and the committee discharged.

Dr. G. L. Buffington reported a case of "Navel Hernia," which was quite thoroughly discussed.

The following officers for the ensuing year were elected: President—J. W. Griffith, Cedar Rapids.

First Vice-President—G. M. Walrod, Storm Lake.

Second Vice-President—G. W. Blanche, Belle Plaine.

Secretary-Treasurer—Hal. C. Simpson, Denison.

Member Executive Committee—R. R. Dykstra, Ames.

Dr. S. Stewart, of Kansas City, invited all to attend the A. V. M. A. meeting in Kansas City next September; also the

Missouri Valley Association in February. A vote of thanks was extended to Dr. Stewart for his kind invitations.

President McNeil in retiring thanked the officers, committees and the members, and called on President Griffith to come forward.

Invitations for the next meeting were presented by Drs. S. T. Miller, Council Bluffs; J. I. Gibson, Des Moines, and P. Malcolm, New Hampton.

The Association was then favored with some singing by Drs. J. I. Gibson and Glen Miller (a son of Dr. D. H. Miller). Both were repeatedly *encored*.

The following were elected to membership: Dr. L. N. McNay, Garden Grove; Dr. A. J. Treman, Lake City; Dr. W. E. Sharp, Newton; Wilton Elery, Anita; H. B. Treman, Rockwell City; J. P. Jorgensen, Elkhorn; P. W. Flickinger, Greenfield; W. H. McLain, Boone; H. L. Pool, Gladbrook; W. F. Miller, Storm Lake; J. A. Hart, Sioux Rapids; Geo. J. Howell, Des Moines; A. F. Reichman, Farley; F. Hassmiller, Eldridge.

RESOLUTIONS ADOPTED.

Tuberculosis.

"WHEREAS, It is a generally known fact that the stock-owners of the State of Iowa are sustaining material loss from insidious advance, among their herds, of tuberculosis; and

"WHEREAS, It is a fact that, because of the nature of this malady, the time is inevitable when the livestock industry will no longer be profitable; and

"WHEREAS, It has been proven that the dairy products from tuberculous cattle constitute a serious menace to public health; and

"WHEREAS, It has been demonstrated that the disease is a controllable one by the application of certain well-known sanitary measures. Be it therefore

"Resolved, That the Legislative Committee of the Iowa Veterinary Association be, and hereby is, instructed to draft such laws as will most effectually suppress and control the further spread of tuberculosis among our farm animals; and be it further

"Resolved, That, in order to remove the most dangerous source of exposure to man, laws be drafted whose aim shall be the regulation of the dairy industry in so far as sanitation is concerned, and the control of the sale of all dairy products."

Thanks to the Chamberlain.

"Resolved, That we, the Iowa Veterinary Association, thank the management of the Chamberlain Hotel for the use of a room for our meetings, and the courteous treatment they have extended our members throughout the meeting."

THE ATTENDANCE.

Members.—G. W. Giese, Neola; J. S. Potter, Iowa City; Hal C. Simpson, Denison; J. P. Jorgensen, Elkhorn; John Antstey, Massena; P. O. Koto, Forest City; James A. Hart, Sioux Rapids; Geo. W. Blanche, Belle Plaine; R. R. Hammond, Cherokee; H. L. Stewart, Lacona; N. A. Kippen, Independence; A. S. Brodie, Cedar Falls; L. L. Diller, Marshalltown; C. E. Baxter, Oakland; J. I. Gibson, Des Moines; S. T. Miller, Council Bluffs; D. H. Miller, Des Moines; J. W. Griffith, Cedar Rapids; L. U. Shipley, Sheldon; A. F. Baldwin, Creston; S. H. Kingery, Creston; J. H. McNeil, Ames; A. Beck, Auburn; W. A. Stuhr, Ames; James Dixon, Tipton; J. W. Bunker, Winter-set; H. L. Pool, Gladbrook; D. E. Baughman, Fort Dodge; E. E. Sayers, Algona; W. W. Talbot, Oskaloosa; Will F. Miller, Storm Lake; A. Kaderabek, Fort Dodge; C. J. Hinkley, Ode-bolt; A. L. Wood, Hampton; B. F. Barber, Fonda; Geo. A. Scott, Waterloo; R. M. Edwards, Knoxville; J. R. Sanders, Corydon; S. K. Hazelet, Oelwein; F. F. Parker, Oskaloosa; J. W. Scott, Manchester; H. E. Talbot, Des Moines; Carl Olson, Sac City; Geo. M. Walrod, Storm Lake; H. B. Treman, Rock-well City; C. E. Stewart, Chariton; A. J. Treman, Lake City; A. A. Aagesen, St. Ansgar; P. Malcolm, New Hampton; W. A. Heck, West Liberty; G. L. Buffington, Brooklyn; R. R. Dykstra, Ames; W. F. Lazeor, Derby; C. J. Heckard, Wheat-land; S. H. Bauman, Birmingham; F. H. P. Edwards, Iowa City; S. Stewart, Kansas City (Honorary).

Visitors.—C. R. Kirk, Chariton; J. S. Anderson, Seward, Neb.; Victor E. Kovar, Chicago; C. E. Hunt, Jas. M. Nelson, W. C. Stewart, W. E. Bemis, H. J. Nygren, A. W. Sprague, J. Lionel Shannon, C. H. Stange, H. O. Mantor, Ames; E. O. Thomas, Kalona; J. H. Gould, U. S. A., Fort Des Moines; Chester Miller, Des Moines; F. W. Law, E. E. Black, P. P. Taylor, H. E. Brockerbaum, Page L. Gilbut, A. I. Kulp, H. E. Trarover, F. C. Gearhart, A. H. Lyenhausen, Ruben J. Moreno, Ames.

CLINIC.

Held at Miller and Gibson's Veterinary Infirmary, 1112 West Locust Street, Des Moines, January 30, 1907.

Peroneal tenotomy for stringhalt, Dr. C. E. Stewart.
Fistula, Dr. S. H. Kingery.
Cunean tenotomy for spavin, Dr. G. A. Scott.
Firing spavin on a mule, Dr. P. O. Koto.
Castrating bull, Dr. J. W. Griffith.
Cutting off long molar and then floating with his new power float, Dr. D. O. Knisely, Topeka, Kans.
Demonstration of passing improved stomach tube, Dr. D. O. Knisely.
Caudal myotomy, Dr. J. S. Potter.
Injured leg, Dr. L. U. Shipley.
Extracting two upper molars of baboon, Dr. S. F. Miller.
Castration of cryptorchid, Dr. C. E. Stewart.
Cropping of puppies' ears, Drs. J. W. Griffith and G. A. Scott.
In addition a number of cases were examined. Some were not considered advisable to operate upon; in others the operation was deferred until the next day and then performed by the veterinarians of the city and a few who remained over for another day. Among the latter was plugging tooth cavity with gutta-percha, femero-popliteal neurectomy for spavin, canker of all four feet in stallion, straightening a congenitally deformed ear, median neurectomy for lameness within feet, and a number of others.

Quite a number of horses were examined for lameness and appropriate treatment recommended for each. A number of high-class bull dogs were exhibited to the members by residents of Des Moines.

HAL C. SIMPSON, *Secretary.*

MISSOURI VALLEY VETERINARY ASSOCIATION.

The semi-annual meeting was held in Kansas City, Mo., February 19th and 20th, 1907. The following veterinarians were present:—Drs. L. P. Arnott, J. S. Anderson, L. R. Baker, R. F. Bourne, F. F. Brown, A. Byrd, L. D. Brown, H. C. Babcock, J. A. Berg, A. F. Baldwin, F. E. Bishop, A. L. Bailey, C. H. Bugbee, G. R. Conrad, L. Champlain, J. W. Chenoweth, C. B. Clement, C. M. Cooper, B. C. Davis, C. H. Davies, W. L. Elliott, R. F. Eagle, T. J. Eagle, L. R. Fauteck, G. M. Fox, G. C. Furnish, C. H. Gaines, W. J. Guilfoil, T. W. Hadley, A. L. Hunt, T. S. Hickman, L. B. Huff, R. H. Hayes, J. L. Hoyleman, E. E. Hubbard, E. F. Jameson, A. W. James, T. A. Jones, P. M. James, D. O. Knisley, L. M. Klutz, A. T. Kinsley, T. H. Knaak, W. L. King, B. F. Kaupp, S. H. Kingery, R. Lovell, E.

J. Lutz, J. V. Lacroix, S. T. Miller, G. A. Meixel, J. H. McLeavy, R. C. Moore, G. J. Mutziger, C. B. McClelland, W. B. McAlester, T. C. McC Casey, G. W. Merker, W. E. Martin, J. M. Mayes, J. McRoberts, J. L. Meixel, E. J. Netherton, J. L. Otterman, O. C. Olson, R. P. Poage, A. T. Peters, G. F. Punteney, M. A. Peck, E. K. Paine, F. A. Pouppirt, S. A. Peck, X. I. Richmond, F. W. Roach, H. A. Reagor, M. H. Reynolds, A. Ruth, J. E. Strayer, C. J. Shiler, D. C. Scott, M. D. Strong, J. P. F. Smith, S. Stewart, V. Schaefer, E. F. Stewart, P. Simonson, C. Saunders, H. M. Smith, W. M. Taylor, W. E. Van Nordheim, E. A. Van Antwerp, J. Vincent, W. Warren, C. J. Young, and others. 350 students of the Kansas City Veterinary College were guests of the Association.

The meeting of February 19th was called to order at 9.30 a. m. by President Stewart, in the New Casino, 1023 Broadway. Roll-call was dispensed with, as members and visiting veterinarians registered at the door. The minutes of the previous meeting were read and approved. The Secretary then read letters of regret of inability to attend the meeting from Drs. A. E. Hoffman, Rushford, Minn.; J. H. McNeil, Ames, Iowa, and F. E. Ransom, of Washington, D. C. The Secretary then read a letter from Dr. Robt. J. Foster, Veterinarian 12th U. S. Cavalry, Fort Oglethorpe, Dodge, Ga. The following is the letter in part: "I hope that at the February meeting you will take some favorable action towards helping the Army Veterinarian get proper recognition. It will surely take the united efforts of all veterinary societies to bring enough force to bear upon Congress for it to do anything at all for us."

The pending bill before Congress was discussed freely, which resulted in a resolution being passed empowering the President to appoint a committee to draft suitable resolutions. The President appointed Drs. E. F. Stewart, A. W. James and T. C. McC Casey on this committee. Dr. M. H. Reynolds said no organized effort was being made in Minnesota, but that individual veterinarians were writing their Representatives and Senators and he believed much good was being accomplished. Dr. T. C. McC Casey said not much effort had been made in Kansas as yet. Dr. W. E. Martin said he had written his Congressman and thought many others in Missouri were doing the same.

Dr. S. Stewart then discussed the present status of the veterinarian in the Army, pointing out the fact that the Army Veterinarian was of high attainment and should be given rank and better recognition.

The President appointed Drs. S. T. Miller and A. W. James on the Board of Censors in place of absentees.

The following names, duly vouched for and favorably passed upon by the Board of Censors, were elected to membership:

Missouri—Drs. A. L. Bailey, C. H. Gaines, L. B. Huff, P. M. James, A. T. Knowles, J. H. McLeavy, C. L. Nelson, W. Sorrell and J. G. Steele.

Nebraska—Drs. L. P. Arnott, W. F. Jones.

Kansas—Drs. R. F. Eagle, G. C. Furnish, H. L. Fretz, G. F. Punteney, H. M. Smith.

Minnesota—A. E. Hoffman, M. H. Reynolds.

The Secretary then read the paper of Dr. A. E. Hoffman, of Rushford, Minn., on "Purpura Hæmorrhagica," which was freely discussed.

At twelve o'clock Parke, Davis & Co. served luncheon to the veterinarians in the reception hall of their establishment at 1008 Broadway. The veterinarians present were interested in the description of drugs and the methods of selecting and testing the same. The following are a few of the things of interest that were said:—When a quantity of ergot is to be purchased samples are sent to the laboratories, where it is tested. First, a given quantity is given to a rooster of a given weight for a given time. The effect upon the comb is noted, thus determining its effect upon the arterial and capillary system. Second, a given quantity is given to a pregnant guinea-pig of a given weight for a given time, thus noting the effect upon the involuntary muscle fibres of the uterus. If the crude drug does not contain a sufficient strength it is rejected. All drugs thus standardized are of a definite strength. It was ergot that led to the discovery that some other method must be used to standardize drugs than by chemical analysis. The chemical test consists of analysis for the percentage of sclerotic acid and ergotin. The fact that some samples containing the same amount of acid and ergotin would have a more powerful action than others has led to the belief that perhaps some other principle yet undiscovered is contained in this drug. Digitalis is tested upon frogs, noting effect upon the heart, while cannabis indica is tested upon dogs.

The meeting was again called to order at 1.30 P. M. by the President. Dr. A. T. Peters, of Lincoln, Neb., presented the following resolution, which had been adopted at a recent meeting of the Iowa-Nebraska Veterinary Association:—"Resolved, That the Iowa-Nebraska Veterinary Association propose to the

Missouri Valley Veterinary Association that the two associations be merged into one under the name of the Missouri Valley Veterinary Association, provided that all members of the present Iowa-Nebraska Veterinary Association be enrolled in that Association without membership fee; and, further provided, that the Missouri Valley Veterinary Association assume control of and responsibility for the *Bulletin* published by the Iowa-Nebraska Veterinary Association." A motion to accept this proposal was seconded and carried. Dr. A. T. Peters then took a vote of the members of the Iowa-Nebraska Veterinary Association to ratify said amalgamation, which unanimously carried. Dr. A. T. Peters stated that the subscription list to the *Bulletin* numbered about 500.

A motion was made, seconded and carried to change the name of the *Bulletin* to that of the *Missouri Valley Veterinary Association Bulletin*. A motion was made, seconded and carried to retain Drs. A. T. Peters, V. Schaefer and S. Kingery on the editorial staff and three additional members be appointed, and that the President ex-officio be a member of the staff. The President then appointed Dr. L. D. Brown, Hamilton, Mo.; Dr. W. B. McAlester, McAlester, I. T.; Dr. D. O. Knisley, Topeka, Kansas, on this staff.

The Secretary read the following resolution from the Committee on Army Legislation:

"Resolved, That the Missouri Valley Veterinary Association now in session at Kansas City, Missouri, ask due consideration of Senate measure 3927 now pending before the U. S. Senate.

Dr. E. F. Stewart
"Dr. A. W. James
"Dr. T. C. McCasey } Committee."

Dr. A. T. Peters moved that the Chair appoint a committee, consisting of one from each of the following states, Missouri, Kansas, Nebraska, Iowa and Oklahoma, to solicit funds to be turned over to the local committee on entertainment of the American Veterinary Medical Association. Seconded and carried. The Chair appointed Dr. A. T. Peters, Lincoln, Neb.; Dr. S. Kingery, Creston, Iowa; Dr. W. B. McAlester, McAlester, I. T.; Dr. L. D. Brown, Hamilton, Mo.; Dr. Chas. Saunders, Eldorado, Kan.

Dr. D. O. Knisley, of Topeka, Kan., presented a paper on "Scrotal Hernia and its Treatment," which was discussed by Dr. Schaefer and others.

A paper on "Laceration of the Perineum of the Mare," by Dr. E. F. Stewart, of Beatrice, Neb., was next discussed.

Dr. L. M. Klutts, of Clinton, Mo., presented an odontoma which had been taken from a tumefaction in the region of the ear. He stated there was a fistulous tract communicating with the tooth cavity, which had existed for six months before operation. The Doctor also exhibited a specimen of a mummified calf which measured about six inches in length and which had been carried *in utero*, causing barrenness for about two years. The cow became pregnant after the removal of the mummified foetus.

The next case related was a bunch of sheep that had been fed on dry feed, such as chop, bran, etc. Many developed a cough. In case of one that had died, an autopsy was held in which some of the bronchioles were plugged with fine particles of feed inhaled, producing death.

Dr. D. B. Leininger, of Kansas City, Mo., presented a paper on "Pathological Shoeing of Horses," illustrating same by numerous specimens of shoes.

Dr. J. E. Strayer, of Carleton, Neb., reported a case of "Atresia Naris Posticus."

Adjourned at 6 P. M. for dinner.

7.30 P. M. meeting again called to order by the President.

The first paper presented was by Dr. M. H. Reynolds, of St. Anthony Park, Minn., on "Milk as Affected Bacteriologically and Otherwise in Handling, Exposure and Stable Practices." The Doctor illustrated his paper by charts, conveying a graphic idea of the number of bacteria and quantity of dirt contained in milk under various conditions. This paper brought out a lively and interesting discussion.

Following this was an interesting talk by Dr. A. T. Peters, of Lincoln, Neb., on "Scabies of Cattle," illustrating by lantern slides and moving pictures the various dipping vats and spraying machines.

Dr. A. T. Kinsley, of Kansas City, Mo., presented a paper on "A Contribution to the Study of Tumors of the Eye," illustrating the paper by lantern slides, showing the appearance of animals before operation, and, by aid of the projectoscope, microscopic slides of various sarcomas taken from the orbital cavity or adjacent structures were shown upon the screen.

Dr. Chas. Bugbee, Kansas City, Mo., presented a paper on "Tuberculosis," giving a review of the subject up to date.

Adjourned.

SECOND DAY—FEBRUARY 20.

The meeting was again called to order at 9 A. M., in the lecture rooms of the Kansas City Veterinary College.

The Secretary read the paper of Dr. Chas. Steele on the subject of "My Experience with the Stomach Tube," after which Dr. E. A. Van Antwerp, of Brookfield, Mo., gave a few reports of interesting cases.

In the absence of Dr. J. H. Slater, of Richmond, Mo., who was to present a paper upon the subject of "Blind Staggers in Horses, due to Mouldy Corn," Dr. A. T. Kinsley opened a discussion of the subject at the suggestion of the Chair. Dr. Kinsley stated that in 1901 he had investigated this condition in Washington County, Kansas. Sixty head had died, many of which were examined post-mortem. There was noted accumulation of fluid in the lateral ventricles with liquefying necrosis of the surrounding tissue. Dr. Walter Warren stated his experience with mouldy corn a few years ago. In the cases examined post-mortem portions of the brain were found to be soft and in a condition of cell necrosis. The Doctor stated that in a few cases observed in the earliest stages which were taken off of the mouldy feed and given potassium bromide, also careful nursing in a quiet stall and wholesome food, some recovered. Upon further inquiry as to symptoms Dr. Kinsley stated that those he had observed were stupid or of a sleepy disposition with dilatation of the pupil. Some cases, apparently blind, would run into objects, evidently not seeing an individual approaching them.

The next paper was presented by Dr. Lloyd Champlain on the subject of "Open Wounds."

On motion, it was decided that the annual meeting in June should be purely formal in order that a wider interest might be ensured for the American Veterinary Medical Association meeting to be held in Kansas City in September.

At 12 o'clock luncheon was served to the veterinarians present.

SURGICAL CLINIC.

Clinic was convened at 1 P. M. in the clinical amphitheatre of the Kansas City Veterinary College.

Case No. 1, a black stallion; disease, roarer; operation, arytenoidectomy; operator, Dr. J. S. Anderson, of Seward, Nebraska. The horse was given one ounce of chloral hydrate in capsule per orum one hour before the operation. The animal was confined by aid of casting harness and held on back, head

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extended. Incision was made through the anterior crico-thyroidian ligament and by means of instruments the vocal cord and small piece of the arytenoid cartilage were removed.

Case No. 2, a dissecting subject, was used for the purpose of demonstrating the operation of removal of the external alveolar plate for repulsion of the molar teeth. The animal was given two ounces of chloral hydrate in six ounces of water intravenously as an anæsthetic. This proved a very efficient method of producing anæsthesia. Operator, Dr. P. Simonson of Fremont, Neb.

Case No. 3, ovariectomy, heifer, by Dr. H. Reagor, of Cambridge, Nebraska. Operation in standing position, confined by ropes to walls. Incision made through left flank, ovaries removed by aid of spaying emasculator.

Case No. 4, a jack; cystic calculus. The animal was confined upon the operating table in a lateral position. The operation consisted of opening the urethra just above the ischial arch, grasping the calculus by means of lithotomy forceps and removing the same. The calculus measured about one and one-half inches long by one inch in thickness.

This concluded the two days' session.

B. F. KAUPP, *Secretary*.

NEBRASKA VETERINARY MEDICAL ASSOCIATION.*

The Nebraska Veterinary Medical Association started the meeting with a clinic on Monday morning at 9.30. There was an unusually large attendance at this early hour. There was sufficient clinical material and the large room used for stock judging and clinical work by the department of Animal Pathology was ample for the members to see the operations as well as to visit. The clinic was private, only the members and their friends being admitted. This and the large amount of clinical material made it a decided success. Those who took part in the operations were Drs. Simonson, Schaefer, Anderson and Tuck. These were assisted by some of the other members.

At 2 o'clock Professor Smith gave a stock-judging demonstration in the stock-judging pavilion. This was attended by all members who attended the meeting and it aroused a great deal of interest. Many questions were asked relating to the judging of live stock.

After spending a profitable hour in the pavilion Dr. Kniseley, of Topeka, demonstrated the use of the stomach tube in digest-

*From the Iowa-Nebraska Veterinary Bulletin for February.

ive disorders. A great deal of interest was centered on this operation, for it is one of vital interest to every practitioner and it brought forth a great deal of discussion. Dr. Kniseley answered in a very brief way all of the questions that were asked.

The meeting was then called to order in the lecture-room and the literary program followed. After reading the minutes President Simonson gave his address, which was brief and to the point. He spoke of the prosperity of the veterinarians of our state and of the work that was before them at this time.

The State Law was then freely discussed by most of the members present. It was the consensus of opinion that our law is a very good one, but that the members had to a great extent mistaken the power and the office of the State Board. The criticisms that were brought forth were to an extent just and no doubt resulted in bringing about a much better understanding of the law and a better feeling between the members and the Board. After discussing this law for nearly two hours the meeting adjourned to attend the banquet at Lindell Hotel.

The banquet was a decided success; covers were spread for fifty. It was an innovation to have the ladies present. Those present were Mrs. Simonson, Mrs. Jensen, Mrs. McEachran, Mrs. Peters, Mrs. Maggi, and Mrs. DeButts. The guests present were Senator P. F. Dodson, Senator L. Goodrich, Senator J. P. Latta, Hon. F. J. Davis, Hon. S. Logsdon, and Hon. C. E. Noyes. Dr. H. Jensen as toastmaster was a decided success. Mrs. DeButts rendered some beautiful songs and Professor Maggi gave some eloquent recitations. The toastmaster then called on some of the visitors and on some of the older members of the profession. The remarks were short and to the point. It was the consensus of opinion that those who attended the meeting should bring their ladies to the annual meeting and to the banquet.

The meeting was called to order on Tuesday morning at 9.30 Dr. Kniseley was the first one called on to read his paper, which was very instructive. He had given his subject a great deal of thought and thereby informed the practitioners present the results that he had obtained for the last few years with the various kinds of tubes, giving in detail the advantages of the tube when applied. It was brought out in the discussion that one must practice using the tube for some time to really appreciate its value and to become proficient in operating the same. The Doctor did not mean to imply that the tube was difficult to insert, but he wanted to impress the members that "practice

makes the master," no matter how simple the operation may seem. It was certainly a treat to the Association to be favored with a paper so well prepared.

Dr. Bostrom's paper was appreciated very much, for it gave the situation of the veterinary conditions in our state and what the practitioner as a rule has to contend with. His paper showed that he was thoroughly conversant with the conditions of a country practitioner and brought out a liberal discussion.

Dr. Gain gave a paper entitled "The Perfect Horse." The Doctor gave some of his observations while judging at county fairs and cited the conditions found at these fairs and how they have improved. He also brought forth a discussion on soundness—the defects that are most commonly found in horses. This is a vital question. He pointed out the value of having a law poses. The paper was discussed to some extent, but not as freely as it should have been. Our state is not up to the times in this respect as other states are, but the time is not far off when the veterinarians must take a lively interest in the subject.

Next was a paper on "Tuberculosis in Hogs," by Dr. Peters. The speaker brought forth the rapid increase of this disease in our state and cited the conditions that the packers are trying to place on the producer. Ways and means should be found to detect this disease in the early stages, so that the producer can clean up his herd. This is where the difficulty arises in stamping out the disease—no sure method has been devised whereby a breeder can be protected in building up a herd of hogs free from this disease. The speaker also drew attention to the losses of animals condemned that only showed glandular affection. The question arose whether all of these glands supposed to be tubercular in hogs were really of a tubercular nature. This talk brought forth a discussion, which was participated in by Drs. Brown, Jensen, Ebbitt, and many others. The noon hour being at hand the discussion on this subject was brought to a close.

The meeting was again called to order by the chairman at 1.30. Dr. B. H. Ransom, of the Bureau of Animal Industry, gave a very fine talk on parasites. He gave the detail of the work that is being done by his department with small parasites, especially the twisted wire worm of sheep. The Doctor was very entertaining in describing the life history of parasites. It was especially instructive to the members present to know what his department was doing and the many experiments that

were under way at this time. Little do we know how injurious these parasites are, and appreciate the work that the Bureau of Animal Industry is doing at this time. After hearing Dr. Ransom's talk every veterinarian should become more familiar with the parasites that infest the domestic animals and become more familiar with the life history and habits of the same.

In the absence of Dr. Heald, who was to talk on corn molds, this subject was freely discussed by many of the members. It was regretted that Dr. Heald could not be present to present his paper. It was the opinion of many that some molds are dangerous, and that where forage is badly affected with molds it is better to discontinue feeding the same. The fact was also brought out that such food was not so dangerous in mild weather as it was in colder weather.

Dr. Drasky was then called upon to report an interesting case—that of a ridgling which had been operated on by Dr. Anderson. It was found by the operator that there were no testicles present, this being the first that the operator in his many years of experience had ever witnessed. The animal died some days after the operation. The specimen was presented and showed that no testicles were present, and that the animal was half male and half female. This was of great interest to the members present.

The Association meetings were discussed. It was thought that there were too many meetings, and a resolution was introduced to change the by-laws so that the State Association only meets once a year. This brought out a liberal discussion. The locations of the meetings was also discussed, many of the members argued that the meetings should be held in different parts of the state, stating that it would do the association more good. A committee was appointed with power to act to canvass the situation, whether it would be advisable to meet in Lincoln or in Omaha the next time. The committee hopes to receive suggestions on this subject from the members who attend these meetings. This can either be sent to the committee or discussed in the journal.

The Association unanimously endorsed Dr. C. A. McKim for reappointment as State Veterinarian, and the Secretary was instructed to forward the resolution to the Governor.

The following were present: J. S. Anderson, Geo. H. Baxter, John A. Berg, Alfred Bostrom, E. T. Bowers, J. C. Bowman, M. V. Beyers, A. W. Carmichael, W. H. Cole, J. A. Decow, J. J. Drasky, Richard Ebbitt, J. H. Gain, H. N. Hall,

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R. A. Huntley, Hans Jensen, Theo. Knaak, Roy Lovell, I. W. McEachran, C. A. McKim, Geo. Meixel, A. A. Munn, W. E. Von Nordheim, E. K. Paine, A. T. Peters, Herbert Pew, H. L. Ramacciotti, J. A. Royce, V. Schaefer, Peter Simonson, J. D. Sprague, E. F. Stewart, D. F. Stouffer, E. E. Trabert, W. H. Tuck, Geo. P. Tucker.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The March meeting took place on the evening of the 6th, and the attendance was large and representative of all phases of the profession in the metropolitan district, while there were a number of out-of-town visitors. After the minutes of the February meeting were read, the meeting at once took up the revision of the Constitution and By-laws through the committee appointed at the last meeting. This committee, composed of Secretary Blair and Dr. Mangan, reported through the former, who read the various sections and the changes suggested, the most important of which was a broadening of the field of the Association by the substitution of the word "City" for "County" in the name of the organization. While it has upon its roll members from all the boroughs of the city and not a few from points quite a distance outside, the name has evidently deterred many from connecting themselves with it, under the idea that the membership was confined to New York County. It may be said that the name itself does not restrict its membership area, and that qualified veterinarians are eligible wherever they may reside. It is believed that the organization can be made a great instrument for good for veterinary science and its members, and these are the only objects which it has, as stated in the Constitution. Two hundred and fifty copies were ordered printed, with a list of members following.

After the adoption of the revised Constitution and By-laws, the President introduced Dr. W. G. Hollingworth, of Utica, N. Y., who presented the subject of "Dairy Inspection." The Doctor had brought with him, packed in ice, a dozen bottles of milk, which had been drawn from the udders of a herd of cows kept under his supervision three weeks previously. He explained that these cows were free from contagious diseases, they were carefully cleaned and disinfected before each milking, their udders, tails, flanks and quarters being washed in an antiseptic solution; the milkers' hands were disinfected, they were

dressed in clean duck suits, and the milk was drawn into a pail having but a small opening for the entrance of the streams from the teats, and immediately that the milking was completed, the pail was taken out of the stable the milk strained into bottles, and kept at a uniform temperature of 50° F. The sample bottles which he presented were closed with paraffine caps, and when opened the milk was found sweet and palatable, most of the members drinking from the bottles with a relish. One veterinarian secured an unopened bottle and placed it at the same temperature at which it had been kept to see how long it will remain sweet and wholesome. The essayist went into the subject largely from a practical standpoint, and showed that the producer had but little incentive to raise the best quality of milk, since there is no distinction in price. He knew from experience that such milk as he had brought with him could not be produced for less than three cents a quart in the winter time, and that was about the highest price that is offered for farmers' milk by wholesalers. He pointed out that considerable legislation will have to be enacted in order to make dairy inspection effective, since tuberculous cows will have to be removed from the herds before the milk can be freed of tubercle bacilli. This will necessitate compensation by the State to the owners for the diseased animals. There is no question but that great good can be done by improving sanitation and the handling of the milk. Also that such diseases as diphtheria and typhoid fever can be prevented from contaminating the milk by proper inspection; but until tuberculous cows are kept out of the herds the greatest source of danger remains. The paper will be published in full in the May REVIEW.

The discussion of the paper was quite general; Dr. E. A. A. Grange went deeply into the subject of the dangers of infected milk cans. He has been lecturing before the Farmers' Institutes of New York, and he heard the farmers complaining bitterly of the condition in which their cans were returned from the cities, some stating that it was one means of getting rid of the city garbage. He spoke of different forms of organisms that could not be destroyed by simply washing out the cans with warm water, some requiring a high boiling point to kill them. He referred to the specimen of milk which Dr. Hollingsworth had brought with him, and said while it was sweet and delicious to taste, there was no certainty that it was wholesome. The bacterial count was necessary to tell the number of germs in it, and the microscope to determine the kind of

bacteria present. He once indulged in some experiments with preserving milk, and congratulated himself that he had discovered a means of keeping it sweet and healthful for an indefinite period, until he placed it under the microscope, and then he found that a slide greatly resembled "an animated roller skating rink on a carnival night." The Doctor seemed to have something up his sleeve and if time had permitted he was prepared to tell how milk cans can be disinfected in a comparatively easy manner. And it is hoped that he will have an opportunity at an early date to complete the narrative.

Following Dr. Hollingworth's subject, Dr. George H. Berns gave a very entertaining description of the "Bayer Operation for Cartilaginous Quittor," which was rehabilitated a couple of years ago by Dr. W. L. Williams. Dr. Berns has been practicing the method extensively since the summer of 1904, and has had uniformly good results from it. He described in a simple manner with the aid of the blackboard, the technic, and was followed by his house surgeon, Dr. Ray W. Gannett, who gave an epitome of some twenty or more cases operated upon since the first of the year, both in Dr. Berns' practice and for other veterinarians. Following this Dr. Berns stated that a horse would be operated on at his infirmary the next afternoon at 2 o'clock, and any of those present sufficiently interested were welcome to attend. Quite a number availed themselves of the opportunity, including the senior class from the N. Y.-A. V. C., and they were well repaid for the trip, for they not only witnessed a well-executed Bayer by Dr. Gannett, but were shown other cases in various stages of healing, as well as a radical operation for suppurative toe-crack by Dr. Atchison, and a post-mortem on an agglutinating case by Dr. Blair.

Dr. E. A. A. Grange then presented his paper on "Artificial Impregnation in Domestic Animals," and he treated the subject in a scholarly manner. Fortunately the REVIEW secured this paper, and will publish it in an early issue. The hour was so late that it could only be discussed superficially, and what was said consisted mostly in inquiries of the essayist as to further details of the fascinating subject, which is becoming so extensively adopted among breeders as to make it imperative that veterinarians should be thoroughly familiar with the details of the procedure.

The President announced that a full program had been secured for the April meeting including a paper on "Practical Disinfection," by Dr. Robert J. Wilson, of the Willard Parker

Hospital, New York, the appointed discussionists being, Drs. E. B. Ackerman and Robert W. Ellis; a communicated paper by Dr. William Dougherty, of Baltimore, Md., on "Quality in Horses," being a further consideration of the subject brought forward by Dr. F. C. Grieside at the January meeting; and a case report of "Rabies in a Horse," by Dr. Charles E. Clayton, of New York.
(R. R. B.)

CONNECTICUT VETERINARY MEDICAL ASSOCIATION.

The annual meeting was held Tuesday, Feb. 5th, 1907, at Hotel Hartford, in Hartford.

On account of the severe snow storm, only a few members could get to Hartford, they not arriving before three o'clock in the afternoon, when the meeting was called to order by the President, Dr. Loveland, with eight members present, viz:—Drs. Thos. Bland, B. K. Dow, L. B. Judson, J. H. Kelley, P. T. Keeley, R. P. Lyman, G. W. Loveland and H. Whitney. Visitors:—Drs. T. F. Krey, New York City, and B. D. Pierce, Springfield, Mass. Also Honorary Member H. O. Averill, State Commissioner of Domestic Animals.

Minutes of the previous meeting were read and approved. A letter from Dr. Geo. H. Parkinson, stating he enclosed check for dues, and to cross his name off the books, was read. A motion was made and seconded that the matter be laid on the table and the President appoint a committee of one or more members to confer with Dr. Parkinson to ascertain why he wished his name taken from the membership list of the Association. Motion carried, and the President appointed Drs. Bland and Bushnell.

Reports of the Secretary and Treasurer respectively were read, and accepted by vote. The Board of Censors had no report to make.

Dr. Bland, Chairman of the Legislative Committee, reported his committee had done nothing up to the present time regarding veterinary legislation further than to keep close watch of the bills presented at this legislature, and so far no bill had been introduced during the session which would in any way affect the present veterinary law. After discussing the matter at some length, it was voted that Dr. Bland confer with Senator Hayes, of his city, on the advisability of striking out line five beginning with the word "Nor" and ending with the

word "Dentistry" in line six, of Sec. 7 of Chapter 183, laws 1905.

The unfinished business being disposed of, officers were elected as follows:

President—Dr. J. H. Kelley, New Haven.

First Vice-President—Dr. R. D. Martin, Bridgeport.

Second Vice-President—Dr. F. F. Bushnell, Middletown.

Secretary—Dr. B. K. Dow, Willimantic.

Treasurer—Dr. H. Whitney, New Haven.

Board of Censors—Drs. Bland, Loveland, Crowley, Keeley and Judson.

The retiring President, Dr. Loveland, thanked the members for their kind and courteous manner toward him, also for the loyal and generous support given him in the discharge of his official duties, and asked that the same consideration and support be given his successor. He then called the newly-elected President, Dr. Kelley, to the chair, on assuming which Dr. Kelley thanked the members for the honor conferred upon him, saying he would work for the interests of the Association and the welfare of its members, and would endeavor to follow in the footsteps of his illustrious predecessor.

Dr. Bland moved that the Treasurer send a check for \$25 to Prof. W. L. Williams for his services in coming to Connecticut to perform a second operation on a horse which was originally operated on at the New Haven meeting of the A. V. M. A. Motion seconded and carried.

Dr. Bland read a letter from Prof. Conn, of the State Pathological Laboratory, in reference to a specimen which he had examined. The writer requested that the veterinary profession or members of it use their influence to assist in securing a large appropriation from the Legislature for the State Laboratory at Middletown. It was voted that a committee be appointed to report to this meeting a resolution to be submitted to the Appropriation Committee commending the work of the State Laboratory and asking for a generous appropriation for State Laboratory purposes, and that a copy of this resolution be sent to Prof. Conn, offering a representative of this Association at the hearing if desired. It was further voted that Drs. Bland, Loveland, Lyman and Honorary Member Commissioner Averill be the committee to draw up the resolution. Dr. Loveland asked to be excused.

A recess of ten minutes was declared to give the committee time to attend to the resolution.

After the meeting reconvened a resolution was offered regarding visitors to the association meetings as follows:

"WHEREAS, The Connecticut Veterinary Medical Association was organized and incorporated for the purposes of the advancement of veterinary science and for the furtherance of sociability among practitioners of veterinary medicine, be it

"Resolved, That this Association recognize and invite to its meetings such practitioners of veterinary medicine as may be members of national, state, county, or provincial associations, and, further, believing that it will occur to the best interests of the profession and the Association, we hereafter disqualify from admission, other practitioners or visitors, unless duly invited by a member in good standing in this Association."

The resolution was adopted.

Dr. Lyman presented in writing proposed changes of the By-laws, viz.: Change Sec. 2, Art. I, by inserting after the word "Officers," first line, the words, "excepting the Board of Censors," and by adding Sec. 3 to Art. to read: "Sec. 3. The Board of Censors shall be appointed by the President-elect at each annual meeting."

The proposed changes were laid on the table until the next meeting.

The business having been disposed of, the President called on Commissioner of Domestic Animals H. O. Averill for a few remarks pertaining to the work of his office in regard to rabies. Commissioner Averill responded that at the present time there was no law which gave him any power to take any action in the matter, but there is a bill before the Legislature which he hoped would become a law; and if it should, it would make the control of rabies more certain and satisfactory. He also said, on account of the new meat inspection and pure food law, it was becoming more difficult for dishonest dealers to dispose of diseased meat; therefore the work of his office had greatly increased. During the past few months he had received a large number of calls from all over the state to have suspected cases of tuberculosis in cattle examined and condemned.

An interesting and instructive discussion on rabies by most of those present finished the business of the meeting, which closed at 6 P. M.

B. K. Dow, *Secretary.*

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

A meeting was held on the evening of March 6, 1907. There was a large attendance; several applicants were admitted to membership, and several applications were received.

Dr. John Lockwood delivered an address on "Accidental Tenotomy," in which he stated his experience and his treatment, in a very interesting manner, bringing forth many new points of interest.

Dr. H. J. Washburn, Assistant Chief, Pathological Division, Bureau of Animal Industry, read a paper on "Rabies," in which, among other things, he described the methods employed by the Bureau in determining the presence of rabies, post-mortem, including the inoculation method, the preparation and microscopical examination of the Gasserion and plexiform ganglia, and the determination of the presence of the Negri bodies in the brain. In the discussion that followed this paper, it was stated that rabies is more prevalent than was generally supposed, and various measures for its eradication were discussed.

A vote of thanks was tendered Drs. Lockwood and Washburn for their addresses.

The subject of the compulsory testing of dairy cows, and an examination of the water supply of dairy farms, was discussed by Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, Drs. J. P. Turner, H. Young and others.

The subject of the transmission of tuberculosis by means of milk from cows with clinically healthy udders evoked much discussion and difference of opinion. In connection with the bill regulating the production and sale of milk, in and for the District of Columbia, the Secretary read a letter from the District Commissioners, in which they stated that they had not recommended the compulsory tuberculin clause only by reason of their belief in the impossibility of securing its passage this session.

The following veterinarians have been appointed as members of the Board of Examiners for the District of Columbia: Drs. D. E. Buckingham, John Lockwood, H. W. Acheson, H. Young and J. R. Mohler. The Board will meet at once, elect officers and prepare for the examination of applicants. All of the Board are prominent members of the Veterinary Association of the District.

F. M. ASHBAUGH, *Secretary.*

VETERINARY ASSOCIATION OF MANITOBA.

The annual meeting of the veterinarians of the Province was held in Brandon on Thursday, Feb. 21, at the City Hall, when they received an address of welcome from the Vice-President of the Board of Trade. In the absence of the President, Dr. McFadden, the chair was taken by the Vice-President, Dr. Martin.

The following members were present:—Drs. Robinson, Fisher, Coxe, Elliott, McMillan and Lawley, of Brandon; Drs. Dunbar, Williamson, Martin, Woods and Torrance, of Winnipeg; Dr. McGilvray, of Binscarth; Dr. Stevenson, of Carman; Dr. Rowcroft, of Birtle; Dr. Hackett, of Hartney; Dr. Jamieson, of Kenton; Dr. Young, of Rapid City; and Dr. Marshall, of Oak Lake.

The annual report of the Secretary-Treasurer and Registrar showed the affairs of the Association to be in a prosperous condition, the membership ninety-one, and the financial statement showing a satisfactory balance in the bank.

The report of the Committee on Ethics was read and discussed clause by clause, and finally adopted without amendment, and will be incorporated in the by-laws. This code is practically the same as that of the American Veterinary Medical Association.

The following officers were elected for the ensuing year:—President—W. E. Martin, Winnipeg.

Vice-President—S. A. Coxe, Brandon.

Secretary-Treasurer and Registrar—F. Torrance, Winnipeg.

Examiners—W. E. Martin, F. Torrance, and J. A. Stevenson.

Members of Council, in addition to above:—W. R. Taylor, Portage la Prairie; J. M. Young, Rapid City, and S. Robinson, Brandon.

“Chloroform Anæsthesia” was the title of an interesting paper read by Dr. Martin, in which he described the action of the drug, its effect on animals, and its use in veterinary surgery. A full discussion followed; many of the members relating their experience in chloroforming horses and other animals, and all agreeing as to its great value, not only in preventing pain, but also in abolishing the struggling and movements of the animals, which would interfere with delicate surgery.

The following resolutions were adopted:—“That the Council appoint three members a Program Committee, to assist the Secretary in preparing a program for the next meeting.” That

"the semi-annual meeting be held at Winnipeg." That "the Secretary correspond with some well-known American veterinary surgeons with the object of getting one to attend our next meeting to operate at the clinic." That "a resolution of condolence upon the death of the late R. S. Scurfield, of Crystal City, be passed, and a copy sent to his widow." That "In view of his services to the profession, Dr. S. J. Thompson be elected an honorary member." That "a vote of thanks be tendered the Brandon City Council for their hospitality."

The meeting then adjourned. F. TORRANCE, *Secretary.*

ARKANSAS VETERINARY SOCIETY.

On Tuesday, Feb. 26, the veterinarians of Arkansas met at Little Rock to organize an association. The meeting opened at 10.30 A. M. and continued, with adjournments for meals, till nearly 10 P. M. Dr. Dinwiddie, Pathologist to the Arkansas Agricultural Experiment Station, was asked to take the chair, and the meeting immediately came to order and settled down to the business in hand. It was decided that the name of the organization be "The Arkansas Veterinary Society." The following officers were elected:

President—Dr. W. Lenton, veterinarian to the Agricultural Experiment Station, Fayetteville.

Vice-President—Dr. V. J. Andre, of Osceola, the originator of Bill 114 (now before the Senate) providing for a State Veterinary Examining Board.

Secretary-Treasurer—Dr. B. H. Merchant, of Little Rock.

Committees on Legislation, Finance, Arrangements and By-laws were appointed by the President and a Board of Censors acting in the capacity of an executive committee.

The Constitution and By-laws drawn up by the By-laws Committee were adopted, and among them the Code of Ethics of the A. V. M. A. was incorporated. Future candidates for admission must be graduates of a recognized three-year college and must submit themselves for examination by the Board of Censors.

One honorary member may be elected annually, and Senator, Harrison, of Osceola, Mississippi County, Ark., was unanimously elected as the first in appreciation of the good work he has done for the advancement of veterinary science in this State by introducing into the Senate Bill 114, regulating practice by "Q. H. D's."

The best of good feeling prevailed throughout the meeting, and it was with a feeling of regret that the members said good-bye to one another at the conclusion. Many and hearty were the invitations and promises of welcome should one member chance to meet another.

The society adjourned to meet again next June, when it is hoped that the Committee on Arrangements will have a good program. Every member is looking forward with interest to meeting again the friends that were made at the organization meeting at Little Rock.

The charter members are as follows:—Drs. V. J. Andre, Osceola; B. H. Merchant, Little Rock; J. W. Watson, Pine Bluff; A. C. Deaver, Hot Springs; H. E. Rice, Little Rock; C. W. Temple, Hope; W. H. Crigler, Newport; R. L. Pryor, Clarksville; Y. C. Hoskins, Newport; Walter Martin, Jonesboro; C. S. Aldrich, Forest City; J. M. Hudson, Helena; R. R. Dinnidie, Fayetteville; W. Lenton, Fayetteville; X. G. May, Fort Smith; T. A. Mitchell, Texarkana; E. S. Rice, Little Rock; C. Chretien, Little Rock; D. B. Morgan, Fayetteville; Harrison Johnson, Texarkana; D. T. Henderson, Texarkana, and W. W. McCrea, Bentonville.

The committees are as follows:—*Board of Censors*—J. W. Watson, V. J. Andre and H. E. Rice. *Committee of Arrangements*—T. A. Mitchell, B. H. Merchant and X. G. May. *Committee on By-Laws*—H. E. Rice, V. J. Andre and R. R. Dinnidie. *Committee on Legislation*—A. C. Deaver, H. E. Rice and V. J. Andre.

B. H. MERCHANT, *Secretary*.

B. A. I. VETERINARY INSPECTORS' ASSOCIATION OF CHICAGO.

On Feb. 22, 1907, the veterinary inspectors of the B. A. I. stationed at Chicago met at the Pathology Laboratory to organize an association, the purpose of which is to bring the inspectors together for the discussion of subjects of especial interest to the veterinary inspectors, and subjects of interest to the profession in general. The following officers were elected for a term of one year:

President—Dr. H. D. Paxson

Vice-President—Dr. W. B. Henneberger.

Secretary-Treasurer—Dr. R. J. Stafford.

The first regular meeting was held on Friday, March 1st,

at 8 P. M., at the Pathology Laboratory. A constitution and by-laws were adopted and other necessary business transacted.

Dr. A. English read an excellent paper on "Extra-Uterine Gestation in a Sow." An interesting discussion followed, which was participated in by a large number of the members present. Regular meetings will be held on the second Friday evening of each month. One or more papers will be presented at each meeting, followed by a general discussion.

R. J. STAFFORD, *Secretary.*

316 Exchange Building, U. S. Yards, Chicago, Ill.

NEW YORK STATE VETERINARY COLLEGE ALUMNI ASSOCIATION.

The first annual meeting was held at Ithaca, Feb. 20, 1907. There were members present from the classes of 1899, 1900, 1902 1903, 1904, 1905, and 1906. From the number of alumni present, and the many letters of regret, it is assured that the alumni body are interested in the perfection of the association. The following officers were elected for the ensuing year:

President—Dr. R. C. Reed, of Elmira.

Vice-President—Dr. C. H. Taylor, of Niagara Falls.

Secretary-Treasurer—Dr. W. J. Taylor, of Ithaca.

Dr. C. E. Shaw, of Brooklyn, and Dr. F. D. Holford, of Avon, were elected members of the Executive Committee.

Following this meeting, the fourth annual banquet of the Society of Comparative Medicine was held in honor of the alumni at the Ithaca Hotel. W. J. TAYLOR, *Secretary.*

CITY PRACTITIONERS were never so busy with foot cases in consequence of the severe street conditions which have maintained for the latter half of the winter.

THE MILLIONAIRE'S STABLE.—An artist was talking about the late Walter Appleton Clark, who died at the beginning of his artistic career. "And Clark," he said, "had a strong sense of humor. I remember going through a millionaire's stables with him one day. You know what a millionaire's stables nowadays are like—floors and walls of translucent white tiles, drinking fountains of marble, mahogany mangers, silver trimmings, and so forth and so on. 'Well, gentlemen,' said the millionaire proudly, 'is anything lacking?' 'I can think of nothing,' said Clark, 'except a sofa for each horse.'"—(*Phila. Bulletin*).

NEWS AND ITEMS.

GEORGE WEISBROD, D. V. S., Brooklyn, N. Y., graduate of the New York-American Veterinary College, died in January.

DR. GEO. F. WESCOTT (A. V. C., '97), of Portland, Me., has recovered from a three months' illness of typhoid, and resumed his practice.

DURING the calendar year 1906, the exports of domestic wheat amounted to 62,850,984 bushels, against 20,738,635 bushels in 1905.

DR. GEORGE H. BURNS, of Brooklyn, N. Y., is soon to begin another addition to his already large infirmary, which will give accommodations for twenty additional patients.

DR. CHARLES BANKS, of Memphis, Tenn., and Dr. Herman H. Weinberg, of Philadelphia, Pa., have recently purchased Humane operating tables, which they have installed in their infirmaries.

DR. M. H. REYNOLDS presented two subjects at the recent Minnesota State Dairy Association — "Tuberculosis Up-to-Date" and "Milk as Affected by Stable, by Stable Practices and Exposures."

SIGN IN A LARGE DAIRY RESTAURANT IN NEW YORK—
"This is to certify that I have examined the cattle in the herd of Mr. John Doe, and found them free from disease. [Signed] Richard Roe, V. S."

THE MINNESOTA STATE LIVESTOCK SANITARY BOARD is asking the Legislature for an increase of annual appropriation to \$50,000 and a special appropriation for glanders and tuberculosis work of \$60,000.

DR. CHARLES E. CLAYTON had in his practice the first part of March a very acute case of rabies in a horse, from which he has had bacteriological and inoculation tests made. He will present the subject a little later before the Veterinary Medical Association of New York City.

DR. R. W. A. ENGLISH, Jersey City, N. J., who suffered a most painful accident last August in a runaway, sustaining a compound fracture of the tibia and fibula of the right leg, is slowly recovering. He yet walks with crutches, but can bear considerable weight upon the leg. There is, however, a large bony deposit about the seat of fracture.

THE MISSOURI VALLEY VETERINARY ASSOCIATION, which has absorbed the Iowa-Nebraska Veterinary Medical Associa-

tion, is now the largest organization in the country save the A. V. M. A., and if it continues to grow as it has in the past two years it will soon outnumber the national association. It was a very sensible thing for these organizations to amalgamate.

DR. WILLIAM DOUGHERTY, of Baltimore, Md., was confined to his home through January and February by an attack of the grip, with asthmatic bronchitis, which aggravated his old enemy, rheumatic gout. But we are glad to report him convalescent. His enforced confinement was utilized to tell his fellow-veterinarians just what a "crab" is; and the fruits of his labors will be found in the department of "Original Articles."

DR. I. C. NEWHARD, Chief Veterinarian for the Philadelphia and Reading Coal and Iron Company, Ashland, Pa., has been lecturing to the employés of the company on the subject of "The Mine Mule," having spoken at Tremont, Mahoney City, Ashland, Shamokin, Shenandoah, and Pottsville. The total attendance was 2,127. The object of these talks is to instruct those in charge of these animals as to their nature and care, and to create a sentiment of humanity among the men in regard to their treatment.

DR. C. J. MARSHALL, who has for years been a hard working member of the Pennsylvania State Veterinary Medical Association, always ready for any service which would tend to better the condition of the association and profession, was at the last annual meeting, March 5 and 6, elected to the highest office in the gift of his fellow-members—that of President, and never did that ermine fall upon more worthy shoulders. Marshall's incumbency means that this year is to be one in which a strong effort will be put forth to make the Association a better one—good as it was.

THE KIND OF DOG IT WAS.—The following notice has been published in a northern Peninsula paper by a French-Canadian: "Loosed. One dawg. Been loose him bout three weeks. Him white dawg almost white with him tail cut off close next to her body. Anybody find her bring him to me. I belong to him and shall give good rewards for the same. Black spot on him nose about size fifty cents or dollar piece, Canada money or United States all the same. For yours truly with anxious, Felix Carno, hind side of Methody church about three blocks in the house up-stairs with green painting."—(*Exchange*.)

DR. TAIT BUTLER, State Veterinarian of North Carolina, is the author of a short bulletin on the "Progress Made in Exter-

minating the Cattle Fever Tick in North Carolina," in which he shows that since 1902, when the campaign undertaken by him of controlling the cattle ranges was begun, twenty counties have been added to the tick-free or unquarantined area of the state. He estimates that the released counties sell about \$550,000 worth of cattle a year, and as beef from below the quarantine line brings from $\frac{1}{4}$ to $\frac{1}{2}$ a cent per pound less than beef from north of that line, an annual saving of \$50,000 occurs—more than three times the entire amount spent in the last five years in accomplishing this result. Evidently Dr. Butler is earning his salary.

DR. CLAUDE D. MORRIS, appearing before the committee of the New York Legislature in opposition to the bill to compel the pasteurization of all milk delivered to consumers in New York City, estimated that the cost of compliance with the law would be \$7,000,000 annually. This vast sum in one year would go a long way toward ridding the State of every case of bovine tuberculosis and by proper inspection to enforce rational hygiene which would eliminate the other dangers to health from unwholesome milk. There would thus be a permanent improvement in the conditions, and not a vast sum spent merely to cook the *Tubercle bacillus*, which would necessarily increase when the present meagre precautions are withdrawn and a false sense of security is felt through the operation of pasteurization. What becomes of the positive statement of the French scientists that pasteurization does not destroy the virulence of the germ of tuberculosis?

BUREAU OF ANIMAL INDUSTRY PUBLICATIONS.—The following bulletins have recently been received: "Tuberculosis of the Food-Producing Animals," by D. E. Salmon, D. V. M.; "The Relation of Tuberculous Lesions to the Mode of Infection," by E. C. Schroeder, M. D. V., Superintendent of Experiment Station, and W. E. Cotton, Expert Assistant at Experiment Station; "Experiments with Milk Artificially Infected with Tubercle Bacilli," by Schroeder and Cotton; "The Tuber-culin Test of Hogs and Some Methods of Their Infection with Tuberculosis," by E. C. Schroeder, M. D. V., and John R. Mohler, V. M. D., Chief of Pathological Division; "The Eradication of the Cattle Tick: Proceedings of a Conference of Federal and State Representatives, held at Nashville, Tenn., Dec. 5 and 6, 1906;" "The Bacteriolytic Power of the Blood Serum of Hogs," by B. M. Bolton, M. D., Bacteriologist, Biochemic Division. Also the following Circulars: "The Life History of the

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Twisted Wireworm (*Hæmonchus contortus*) of Sheep and Other Ruminants," by B. H. Ransom, B. Sc., A. M.; "The New Meat Inspection Law and Its Bearing upon the Production and Handling of Meats," by George P. McCabe, Solicitor for the Department of Agriculture; "The Fecundity of Poland China and Duoc Jersey Sows," by George M. Rommel, Animal Husbandman; "How to Get Rid of Cattle Ticks," by A. D. Melvin, Chief of the Bureau; "Actinomycosis, or Lumpy Jaw," by D. E. Salmon, D. V. M., and Theobald Smith, M. D.; "Some Unusual Host Relations of the Texas Fever Tick," by B. H. Ransom, B. Sc., A. M.; "Stomach Worms (*Hæmonchus contortus*) in Sheep," by B. H. Ransom.

WHAT CAUSES HORSES TO RUN AWAY.—The New York *Herald* has kept a record of one thousand runaway horses, and in its issue of March 3 summarizes the causes which led to the frightening of the animals. It appears that the driver is more frequently at fault than is the horse, and negligence in the care of the harness and vehicle plays an important part. Below is a tabular synopsis of the article :

Negligence of Driver.

Horses left unattended	82
Reins dropped	26
Tail over reins	22

Defective Harness.

Broken rein	97
Broken or misplaced breaching	85
Detached trace	62
Broken bit or bridle	26
Broken girth	10

Defective Vehicle.

Detached wheel	82
Broken whiffletree	34
Broken shaft	21
Broken kingbolt	12
Broken axle	6

Horse Frightened By.

Automobiles	130
Railway trains	72
Being run into	70
Street cars	58
Motor cycles	48
Fireworks	20
Flying paper	16
Fire engines	13

"A COCAINE DREAM."—John D. Rockefeller's \$3,000,000 institute for medical research in this city announces a discovery

which is expected to revolutionize the use of anæsthetics in surgery. The discovery relates to cocaine as an anæsthetic for serious operations. Ether is less dangerous than chloroform, but it stimulates the heart and after its influence has subsided the patient becomes deathly sick. Chloroform does not produce nausea, but it depresses the heart and even a slight overdose is likely to cause death during the period of unconsciousness. Cocaine has heretofore been regarded as available only for minor operations and local applications, such as toothache and external cuts or wounds. Dr. L. Kast and Dr. S. J. Meltzer, of the Rockefeller institute, after a series of elaborate investigations, have found out, however, that cocaine, instead of being a mild drug, in reality exerts in certain dosage a profound and far-reaching influence over the internal organs, which will render it available for serious operations. This is a boon to surgeons as well as patients, because cocaine is not at all dangerous to use and has no bad effects. Involved in the discovery as to cocaine is another curious one of scarcely less importance, namely: That, notwithstanding the long prevailing belief to the contrary among the medical profession, a man's liver and kidneys are as susceptible to pain as his finger or toe. For generations doctors have been regarding the abdominal organs as dead to all sensations, doing their work mechanically and unsupplied with sensory nerves. It is in exploding this theory of "dead" organs that the scientific experts of the Rockefeller institute stumbled, as it were, on the vastly important discovery as to cocaine. It having been insisted by Lennander, the great Swedish surgeon, that the internal organs could be cut, squeezed or burned without more sensation of pain than would be experienced by the hair or nails, Drs. Kast and Meltzer set out to prove the contrary. They have carried out the experiments on dogs and cats. They ascertained that Lennander, in his experiments, had put his animals under the influence of cocaine and morphine. Lennander had used the cocaine subcutaneously without dreaming it could extend its influence far into the body. So, when the internal organs were tested and showed no pain reaction, it was regarded as conclusive that they were not subject to pain. Kast and Meltzer found that cocaine injected even in the foreleg would produce anæsthesia all through the abdominal region. By further research they established the fact that it overspreads the system through the circulation. Thus, Lennander's animals proved nothing except that their organs had been deadened to pain.—(*New York Correspondence St. Paul Pioneer-Press.*)

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VETERINARY MEDICAL ASSOCIATION MEETINGS.

Secretaries are requested to see that their organizations are properly included in the following list.

Name of Organization.	Date of Next Meeting.	Place of Meeting	Name and Address Secretary.
American V. M. Ass'n.....	Sept. 10-13, '07.	Kan. City, Mo.	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.....	July, 1907.	Asbury Park.	W. H. Lowe, Paterson.
Connecticut V. M. Ass'n.....	.....	.....	B. K. Dow, Willimantic.
New York S. V. M. Soc'y.....	Sept., 1907.	New York City	G. T. Stone, Binghamton.
Schuylkill Valley V. M. A.....	June 19, 1907.	Reading, Pa.	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Monthly.	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	Call Exec. Com.	Boston.	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n.....	Monthly.	.....	F. J. Babbitt, Lynn, Mass.
Maine Vet. Med. Ass'n.....	.....	.....	R. E. Freeman, Dexter.
Central Canada V. M. Ass'n.....	July, 1907.	Ottawa.	A. E. James, Ottawa.
Michigan State V. M. Ass'n.....	State Fair Week	Detroit.	Judson Bläck, Richmond.
Alumni Ass'n N. Y.-A. V. C.....	April, 1907.	141 W. 54th St	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n.....	July, 1907.	Springfield.	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad.....	.....	.....	S. Beattie, Madison.
Illinois V. M. and Surg. A.....	.....	Decatur.	C. M. Walton, Rantoul.
Vet. Ass'n of Manitoba.....	Not Stated.	Winnipeg.	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n.....	.....	.....	C. J. Fleming, Winston-Salem
Ontario Vet. Ass'n.....	Summer 1907.	Ottawa.	C. H. Sweetapple, Toronto.
V. M. Ass'n New York City.....	1st Wed. ea. mo	141 W. 54th St	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n.....	.....	Columbus.	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo	Pittsburgh.	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	.....	.....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n.....	July, 1907.	Rochester.	J. H. Taylor, Henrietta, N.Y.
Iowa Veterinary Ass'n.....	.....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n.....	July 10-11.	Mankato.	C. A. Mack, Stillwater.
Pennsylvania State V. M. A.....	.....	Philadelphia.	C. J. Marshall, Philadelphia
Keystone V. M. Ass'n.....	Monthly.	.....	A. W. Ormeston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n.....	1st Mon. in June	Denver.	M. J. Woodliffe, Denver.
Missouri Valley V. M. Ass'n.....	June, 1907.	Kan. City, Mo.	B. F. Kaupp, Kansas City.
Rhode Island V. M. Ass'n.....	June and Dec.	Providence.	T. E. Robinson, Westerly, R. I.
North Dakota V. M. Ass'n.....	.....	.....	C. H. Martin, Valley City.
California State V. M. Ass'n.....	Mch. Je. Sep, Dc	San Francisco	C. H. Blemer, San Francisco.
Southern Auxiliary of Califor nia State V. M. Ass'n.....	Jan. Apl. Jy, Oct.	Los Angeles.	J. A. Edmons, Los Angeles.
South Dakota V. M. A.....	.....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n.....	.....	.....	Hans Jenson, Weeping Water
Kansas State V. M. Ass'n.....	.....	.....	Hugh S. Maxwell, Salina.
Ass'n Médécale Veterinaire Française "Laval,".....	Jan. 1908.	Manhattan.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A.....	1st & 3d Thur. of each month.	Lect. R'm La- val Un'y Mon. Mon. & Que.	Gustave Boyer, Rigaud, P.Q.
Kentucky V. M. Ass'n.....	Nov. 19, 1907.	Not decided.	D. A. Piatt, Lexington.
Washington State Col. V. M. A.....	Monthly.	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association.....	An'l Jan., '08.	Indianapolis.	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n.....	2d Thu ea. mo	St. P.-Minneapolis	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.....	April 2, 1907.	Cincinnati.	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n.....	.....	Atlanta.	J. C. Robert, Agricultural Col.
Georgia State V. M. A.....	July 4, 1907.	Philadelphia.	L. C. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn.....	June, 1907.	.....	B. T. Woodward, Chicago.
Virginia State V. M. Ass'n.....	.....	.....	S. C. Neff, Staunton.
Oklahoma V. M. Ass'n.....	.....	.....	W. H. Martin El Reno.
Veterinary Practitioners' Club.....	Monthly.	.....	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia.....	Last W. ea. mo.	2116 14th St., N. W.	F. M. Ashbaugh, Wash., D.C
B. A. I. Vet. Insp. Ass'n. of Chicago.....	2d Fri. ea. mo.	Chicago.	R. J. Stafford, U. S. Yards.
Arkansas Veterinary Society....	June, 1907.	Little Rock.	B. H. Merchant, Little Rock

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AN INTERESTING LIST OF VETERINARY BOOKS AND INSTRUMENTS.

At the top of page 13, of our advertising department, our readers this month will find something of interest to nearly all of them. The entire library of books right up to date, and veterinary instruments and appliances, the result of years of careful selection, are there enumerated.

THOSE veterinarians who were not fortunate enough to see the use of "SULPHUR STARCH" demonstrated at the clinic of the great national convention in August last, are referred to page 7 (adv. dept.), for some suggestions on its use by the agents for the same.

AMERICAN VETERINARIANS are beginning to inquire for the American agents for "TENALINE," that very nice preparation from areca, prepared by the well known London house, Willows, Francis, Butler & Thompson, Ltd., and we have promised to obtain the same, and will publish it for our subscribers' information, as soon as received.

THE NORWICH PHARMACAL COMPANY, in addition to an excellent grade of Tinctures and Fluid Extracts, have a line of Standardized Pharmaceuticals; and especially cater to putting up in large quantities veterinarian's own prescriptions. Their tablets for canine practice contain many excellent formulae.

